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MILITARY HANDBOOK

This handbook is for guidance only.
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LIST OF STANDARD SEMICONDUCTOR DEVICES

AMSC N/A FSG 59GP

FOREWORD

1. This military handbook is approved for use by all Departments and Agencies of the Department of Defense.

2. This handbook is for guidance only. This handbook cannot be cited as a requirement. If it is, the contractor does not have to comply.

3. Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Defense Supply Center, Columbus, ATTN: DSCC-VAC, P.O. Box 3990, Columbus OH 43216-5000, by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

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1. SCOPE

1.1 Scope. This handbook establishes the requirements for the selection of semiconductor devices used in the design and manufacture of military equipment.

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed below are not necessarily all of the documents referenced herein, but are the ones that are needed in order to fully understand the information provided by this handbook.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the latest issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto.

SPECIFICATION

MILITARY

MIL-PRF-19500 - Semiconductor Devices, General Specification for.

(Unless otherwise indicated, copies of the above specifications, standards, and handbooks are available from the Defense Automated Printing Services, Bldg 4D (DPM-DODSSP), 700 Robbins Av, Philadelphia, PA 19111-5094.

2.3 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. DEFINITIONS

3.1 Definitions. The terms used in this handbook are defined in MIL-PRF-19500.

4. GENERAL REQUIREMENTS

4.1 Purpose. The purpose of this handbook is as follows:

a. To provide equipment designers and manufacturers with lists of semiconductor devices considered standard for military applications.

b. To control and minimize the variety of semiconductor devices used by military activities in order to facilitate effective logistic support of equipment in the field; to maximize economic support of, and to concentrate improvement on, production of the semiconductor devices listed in this handbook.

4.2 Selection of semiconductor devices. Semiconductor device types must be selected from those types listed in this handbook. The variety of semiconductor devices used in any military equipment should be the minimum necessary to provide satisfactory performance.

4.3 Use of semiconductor devices.

4.3.1 Controlled characteristics. Satisfactory equipment performance should depend only on a semiconductor device characteristic which is controlled by the applicable MIL-PRF-19500 associated performance specifications.

4.3.2 Correlation of circuit requirements and associated performance specifications test conditions. When an application condition varies widely from the associated performance specification test condition(s), it should be the responsibility of the contractor to establish satisfactory correlation between the circuit requirements and the associated performance specification requirements.

4.4 Criteria for inclusion in this handbook.

a. The semiconductor device should have an approved associated performance specification.

b. The semiconductor device should be considered, by representatives of the military departments, the best available type for current application.

c. Continued availability of the semiconductor device should be reasonably certain.

4.5 Lists of semiconductor devices. Tables included herein list the ratings and primary electrical characteristics and applicable specification number for all semiconductor devices approved as standard for use in the design and manufacture of military equipment. (Complete detailed requirements for semiconductor devices listed in this handbook are covered in the applicable associated performance specification.) There are no germanium devices listed.

4.5.1 TX, TXV, and S types. Only the JANTX, JANTXV, and JANS versions of semiconductor device types listed herein are approved for use. The prefix JANTX is used on devices which have been submitted to and have passed special process-conditioning, testing and screening, and the prefix JANTXV is used on devices which have been submitted to a visual precap inspection in addition to the process-conditioning, testing and screening. The JANS prefix is used on devices which have been subject to special certification, process-conditioning testing, screening, precap visual, radiography, particle tests, and other tests for space flight quality level.

4.5.1.1 Dash one (-1) parts. Where dash one (-1) parts are available on the associated performance specification and listed on QPL-19500, only those -1 parts are to be considered as the preferred types.

4.5.2 Reverse polarity types. The reverse polarity versions of semiconductor device types listed herein are also approved for use.

4.5.3 Surface mount. Surface mount versions of devices (designated by "U" suffix part numbers) are also approved for use. Notations for surface mount versions are made by a 'U' in the left margin of some tables or SM in the case column header. Specific case configurations are available in each applicable specification.

4.5.4 Unencapsulated dice. Specifications which allow for qualification of device chips (unencapsulated dice) are noted by a 'C' in those tables and are also approved for use. Specific die geometry configurations are available in each applicable specification.

4.5.5 Dual devices. Specifications which have dual devices are noted by a 'D' the left margin of those tables.

4.6 Conflict of data. In the event of conflict between the technical description of semiconductor devices listed in this handbook and the applicable specification, the specification should govern.

4.7 Blank spaces in tables. Blank spaces in tables indicate a characteristic which either is not characterized in that associated peformance specification or characterized for a rating which is not in accordance with the ratings shown in this particular table.

5. DETAILED REQUIREMENTS

This section is not applicable to this handbook.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. This handbook covers the requirements for the selection of semiconductor devices used in electronic military equipment.

6.2 Parameter values. Every reasonable effort is made to insure that this handbook lists the most recent parameter values for the devices listed. However, users are cautioned to verify all values against the current revision of the applicable associated performance specification.

6.3 Qualified list. Some of the device types listed in this handbook may not be listed on QML-19500. The preparing activity may be contacted to obtain the up-to-date status of the QML. (See procedures and notes in QML-19500.)

6.4 Case outlines. Case dimensions must be obtained from the specification; a surface mount or chip identifier in this handbook does not guarantee QPL availability.

6.5 Subject terms (key word) listing.

Current regulator
Darlington
Diode
Light emitting diode
Mosfet
Optically coupled isolator
Pin diode
Rectifier
Schottky barrier
Semiconductor device
Thyristor
Transient suppressor
Transistor
Voltage reference diode
Voltage-variable-capacitance diode
Zener

6.6 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

TABLE I. NPN low power transistors.

	Device type no.	Maximum ratings			Primary electrical characteristics							Case	Spec
		P_T	I_C	V_{BR} CBO	V_{BR} CEO	V_{BR} EBO	h_{FE} at I_C		$V_{CE(sat)}$ at I_C		Cobo		
		mW	mA	V dc	V dc	V dc		mA	V dc	mA	pF		
	2N4449	300		40	15	4.5	40/120	10	0.2	10	4.0	TO46	317
C U	2N2222A	500	800	75	50	6.0	100/300	150	1.0	500	8.0	TO18	255
	2N5582	500	800	75	50	6.0	100/300	150	1.0	50	8.0	TO46	423
	2N3700	500	1000	140	80	7.0	50/200	500	0.2	150	12.0	TO18	391
	2N2219A	800	800	75	50	6.0	100/300	150	1.0	500	8	TO5	251
	2N3019	800	1000	140	80	7.0	100/300	150	0.2		12	TO5	391
	2N3439	800	1000	450	350	7.0	40/160	20	0.5	50	10	TO5	368
	2N3501	1000	300	150	150	6.0	100/300	150	0.4	150	8	TO5	366
	2N3507	1000	3000	80	50	5.0	30/150	1500	1.0	1500	40	TO5	349
	2N3421	1000	3000	125	80	8.0	40/120	1000	.25	1000	150	TO5	393
C	2N5339	1000	5000	100	100	6.0	60/240	2000	.7	2000	250	TO39	560
	2N5666	1200	5000	250	200	6.0	40/120	1000	.4	3000	90	TO5	455
	2N5667	1200	5000	400	300	6.0	25/75	1000	.4	3000	90	TO5	455
	2N4150	1500	10000	100	70	7.0	40/120	5000	.6	5000	350	TO5	394
	2N5237	1500	10000	150	120	7.0	40/120	5000	.6	5000	350	TO5	394

NOTE: Quad 2N2222A is 2N6989 in a 14 pin DIP; 2N6989U is an L.C.C. SURFACE MOUNT; 2N6990 is a FLATPACK on /559.

TABLE II. PNP low power transistors.

	Device type no.	Maximum ratings			Primary electrical characteristics							Case	Spec
		P_T	I_C	V_{BR} CBO	V_{BR} CEO	V_{BR} EBO	h_{FE} at I_C		$V_{CE(sat)}$ at I_C		C_{obo}		
		mW	mA	V dc	V dc	V dc		mA	V dc	mA	pF		
	2N4261	200	30	15	15	4.5	30/150	10	0.15	1	2	TO72	511
	2N2945A	400	100	25	20	25.0	70/---	1		10		TO46	382
	2N2946A	400	100	40	35	40.0	50/---	1		10		TO46	382
C U	2N2907A	400	600	60	60	5.0	100/300	150	1.6	500	8	TO18	291
	2N3486A	400	600	60	60	5.0	100/300	150	1.6	500	8	TO46	392
	2N3764	500	1500	40	40	5.0	30/120	1000	.5	500	15	TO46	396
	2N2905A	600	600	60	60	5.0	100/300	150	1.6	500	8	TO5	290
C	2N5416	750	1000	350	300	6.0	30/120	50	2.0	50	15	TO5	485
C	2N3743	1000	50	300	300	5.0	50/200	30	1.2	30	15	TO39	397
	2N3637	1000	1000	175	175	5.0	100/300	50	.9	50	10	TO5	357
	2N3762	1000	1500	40	40	5.0	30/120	1000	.5	500	15	TO39	396
	2N5153	1000	2000	100	80	5.5	70/200	2500	1.5	5000	250	TO39	545
	2N3868	1000	3000	60	60	4.0	30/150	1500	.75	1500	120	TO5	350
C	2N6193	1000	5000	100	100	6.0	60/240	2000	.7	2000	300	TO39	561

NOTE: Quad 2N2907A is a 2N6987 in a 14 pin DIP on /558; 2N6988 is a Quad 2N2907 in FLATPACK on /558.

TABLE III. NPN power transistors.

	Device type no.	P_T	Maximum ratings				Primary electrical characteristics						
			I_C	V_{BR} CBO	V_{BR} CEO	V_{BR} EBO	h_{FE} at I_C		$V_{CE(sat)}$ at I_C		f_t	Case	Spec
		W	A	V dc	V dc	V dc					MHz		
C	2N3997	30	5	100	80	8.0	80/240	1.0	2.0	5.0	40/	111	374
	2N2880	30	5	110	80	8.0	40/120	1.0	.25	1.0	20/120	STUD	315
	2N5004	58	5	100	80	5.5	70/200	2.5	1.5	5.0		TO59	534
	2N5157	100	3.5	700	500	6.0	30/90	1.0	0.8	1.0	2.5/12	TO3	371
	2N7368	115	10	80	80	7.0	30/140	3.0	1.0	5.0	2.5/12	254	622
	2N3442	117	10	160	140	7.0	20/70	3.0	1.0	3.0	0.1	TO3	370
C	2N5038	140	20	150	90	7.0	50/200	2.0	1.0	12	60/200	TO3	439
	2N5672	140	30	150	120	7.0	20/100	15	.75	15	50/200	TO3	488
	2N3716	150	10	100	80	7.0	30/120	3.0	1.0	5	4/20	TO3	408
C	2N6249	175	10	300	200	6.0	10/50	10	1.5	10		TO3	510
C	2N6250	175	10	375	275	6.0	8/50	10	1.5	10		TO3	510
C	2N6251	175	10	450	350	6.0	6/50	10	1.5	10		TO3	510
	2N6546	175	15		300	9.0	12/60	5	1.5	10		TO3	525
	2N6547	175	15		400	9.0	12/60	5	1.5	10		TO3	525
	2N6676	175	15	450	300	8.0	15/40	1	1.0	15		TO3	538
	2N6678	175	15	650	400	8.0	15/40	1	1.0	15		TO3	538
	2N5303	200	20	80	80	5.0	15/60	10	1.0	10	2/20	TO3	456
	2N6338	200	25	120	100	6.0	30/120	10	1.0	10		TO3	509
	2N5302	200	30	60	60	5.0	15/60	15	.75	10	2/20	TO3	456
	2N5685	300	50	60	60	5.0	15/60	25	1.0	25	2/20	TO3	464
	2N5686	300	50	80	80	5.0	15/60	25	1.0	25	2/20	TO3	464

TABLE IV. PNP power transistors.

	Device type no.	P_T	Maximum ratings				Primary electrical characteristics						
			I_C	V_{BR} CBO	V_{BR} CEO	V_{BR} EBO	h_{FE} at I_C		$V_{CE\ (sat)}$ at I_C		f_t	Case	Spec
		W	A	V dc	V dc	V dc					MHz		
	2N3741	25	4	80	80	7.0	30/100	0.25	0.6	1.0	4/20	TO66	441
C	2N6211	35	2	275	225	6.0	30/175	1.0	1.4	1.0	5	TO66	461
C	2N6212	35	2	350	300	6.0	35/175	1.0	1.6	1.0	5	TO66	461
C	2N6213	35	2	400	350	6.0	30/175	1.0	2.0	1.0	20/100	TO66	461
	2N5005	58	10	100	80	5.5	70/200	2.5	1.5	5.0		TO59	535
	2N3792	150	10	80	80	7.0	30/120	3.0	1.0	5.0	4/20	TO3	379
	2N7369	115	10	80	80	7.0	30/140	3.0	1.0	5.0		254	621
	2N4399	200	30	60	60	5.0	15/60	15.0	0.75	5.0	4/40	TO3	433
	2N5745	200	20	80	80	5.0	15/60	10.0	1.0	10.0	2/40	TO3	433
	2N6438	200	25	140	120	6.0	25/100	10.0	1.0	10.0		TO3	508
	2N5683	300	50	60	60	5.0	15/60	25.0	1.0	25.0		TO3	466
	2N5684	300	50	80	80	5.0	15/60	25.0	1.0	25.0		TO3	466

TABLE V. RF transistors.

Device type no.	Maximum ratings					Primary electrical characteristics						Spec
	P_T	F	P_{out}	G_{PE}	I_C	$V_{(BR)CBO}$	$V_{(BR)CEO}$	$V_{(BR)EBO}$	h_{FE} at I_C		ft	
	W	MHz	W	dB	A	V dc	V dc	V dc		mA	MHz	
2N4957	.2			25	.03	30	30	3.0	30/165	5.0	1200/3600	426
2N2857	.3			21	.04	30	15	3.0	30/150	3.0	1000/1900	343
2N5109	1			11	.04	40	20	3.0	40/120	50.0	1200/1800	453
2N3866A	1	400	2.0		.04	60	30	3.5	25/200	50.0	800/1500	398

NOTE: All RF devices are NPN except 2N4957

TABLE VI. N-channel power MOSFETs.

	Device type no.	Maximum ratings			Primary electrical characteristics						Case	Spec
		P_T at T_C	V_{DS}	V_{GS}	I_D at T_C	$V_{GS(th)}$ min at I_D		$r_{DS(on)}$ at V_{GS}	g_{fs}			
		= 25°C			= 25°C			= 10 V				
		W	V	V	A	max	mA	maxΩ	min	max		
	2N6660	6.25	60	±20	0.99	.8/2	1.0	3.0			39	547
	2N6661	6.25	90	±20	0.86	.8/2	1.0	4.0			39	547
	2N6901	8.33	100	±10	1.69	1/2	1.0	1.4	0.3	12.0	39	570
	2N6903	8.33	200	±10	0.98	1/2	1.0	3.65	0.5	2.0	39	570
C	2N6782	15	100	±20	3.50	2/4	0.25	.6	1.0	3.0	39	556
C	2N6784	15	200	±20	2.25	2/4	0.25	1.5	0.9	2.7	39	556
C	2N6786	15	400	±20	1.25	2/4	0.25	3.6	0.7	2.1	39	556
C	2N6788	20	100	±20	6.0	2/4	0.25	.30	1.5	4.5	39	555
C	2N6790	20	200	±20	3.5	2/4	0.25	.80	1.5	4.5	39	555
C	2N6792	20	400	±20	2.0	2/4	0.25	1.80	1.0	3.0	39	555
C	2N6794	20	500	±20	1.5	2/4	0.25	3.00	1.0	3.0	39	555
C	2N6796	25	100	±20	8.0	2/4	0.25	.18	3.0	4.0	39	557
C	2N6798	25	200	±20	5.5	2/4	0.25	.4	2.5	7.5	39	557
C	2N6800	25	400	±20	3.0	2/4	0.25	1.0	2.0	6.0	39	557
C	2N6802	25	500	±20	2.5	2/4	0.25	1.5	1.5	4.5	39	557
	2N6902	75	100	±20	12	1/2	1.0	0.2	0.3	12.0	3	566
	2N6904	75	200	±20	8.0	1/2	1.0	0.65	0.3	12.0	3	566
	2N6756	75	100	±20	14.0	2/4	0.25	.18	4.0	12.0	3	542
	2N6758	75	200	±20	9.0	2/4	0.25	.4	3.0	9.0	3	542
	2N6760	75	400	±20	5.5	2/4	0.25	1.0	3.0	9.0	3	542
	2N6762	75	500	±20	4.5	2/4	0.25	1.5	2.5	7.5	3	542
C U	2N7218	125	100	±20	28.0	2/4	0.25	.077			254	596
C U	2N7219	125	200	±20	18.0	2/4	0.25	.18			254	596
C U	2N7221	125	400	±20	10.0	2/4	0.25	.55			254	596
C U	2N7222	125	500	±20	8.0	2/4	0.25	.85			254	596
C U	2N7224	150	100	±20	34.0	2/4	0.25	.070			254	592
C	2N6764	150	100	±20	38.0	2/4	0.25	.055	9.0	27.0	3	543
C U	2N7225	150	200	±20	27.0	2/4	0.25	.10			254	592
C	2N6766	150	200	±20	30.0	2/4	0.25	.085	9.0	27.0	3	543
C U	2N7227	150	400	±20	14.0	2/4	0.25	.315			254	592
C	2N6768	150	400	±20	14.0	2/4	0.25	.300	8.0	24.0	3	543
C U	2N7228	150	500	±20	12.0	2/4	0.25	.415			254	592
C	2N6770	150	500	±20	12.0	2/4	0.25	.400	8.0	24.0	3	543

TABLE VII. P-channel power MOSFETs.

		Maximum ratings			Primary electrical characteristics							
	Device type no.	P_T at T_C = 25°C W	V_{DS} V	V_{GS} V	I_D at T_C = 25°C A	$V_{GS(th)}$ min at I_D max	mA	$r_{DS(on)}$ at V_{GS} = 10 V max Ω	g_{fs} min	max	Case	Spec
	2N6895	8.33	100	±20	1.16	2/4	1.0	3.65	0.2	0.8	39	565
C	2N6845	20	100	±20	4.0	2/4	0.25	.6	1.25	3.75	39	563
C	2N6847	20	200	±20	2.5	2/4	0.25	1.5	1.0	3.0	39	563
C	2N6849	25	100	±20	6.5	2/4	0.25	.30	2.5	7.5	39	564
C	2N6851	25	200	±20	4.0	2/4	0.25	.80	2.2	6.6	39	564
	2N6896	60	100	±20	6.0	2/4	1.0	.60	1.0	4.0	3	565
C	2N6804	75	100	±20	11.0	2/4	0.25	.30	3.0	9.0	3	562
C	2N6806	75	200	±20	6.5	2/4	0.25	.8	2.0	6.0	3	562
	2N6897	100	100	±20	12	2/4	1.0	.35	2.0	8.0	3	565
C U	2N7236	125	100	±20	18	2/4	0.25	.20			254	595
C U	2N7237	125	200	±20	11	2/4	0.25	.51			254	595
	2N6898	150	100	±20	25	2/4	1.0	.20	4.0	1.6	3	565

TABLE VIII. Quad MOSFETs.

		Maximum ratings				Primary electrical characteristics						
	Device type no.	Channel Polarity	P_T at T_C = 25°C W	V_{DS} V	V_{GS} V	I_D at T_C = 25°C A	$V_{GS(th)}$ min/max	at I_D mA	$r_{DS(on)}$ at V_{GS} = 10 V max Ω	Case	Spec
C	2N7334	4 N's	1.4	100	±20	1.0	2/4	0.25	0.7	14 - DIP	597
C	2N7335	4 P's	1.4	100	±20	0.75	2/4	0.25	1.4	14 - DIP	599
	2N7336	2N's, 2P's	1.4	100	±20	0.75	2/4	0.25	1.4	14 - DIP	598

TABLE IX. NPN Darlington transistors.

Device type no.	P_T	Maximum ratings				Primary electrical characteristics				Case	Spec
		I_C	V_{CBO}	V_{CEO}	V_{EBO}	h_{FE} at I_C		$V_{CE(sat)}$ at I_C			
	W	A	V dc	V dc	V dc	(x 1000)	A dc	V dc	A dc		
2N6301	32	8	80	80	5	.75-18	4	2.0	4	TO66	539
2N6384	100	10	60	60	5	1-20	5	2.0	5	TO3	523
2N6385	100	10	80	80	5	1-20	5	2.0	5	TO3	523
2N7370	100	12	100	100	5	1-18	6	3.0	12	TO254	624
2N6058	150	12	80	80	5	2.5-10	6	3.0	12	TO3	502
2N6059	150	12	100	100	5	2.5-18	6	3.0	12	TO3	502
2N6283	175	20	80	80	7	1.25-18	10	3.0	20	TO3	504
2N6284	175	20	100	100	7	1.25-18	10	3.0	20	TO3	504

TABLE X. PNP Darlington transistors.

Device type no.	P_T	Maximum ratings				Primary electrical characteristics				Case	Spec
		I_C	V_{CBO}	V_{CEO}	V_{EBO}	h_{FE} at I_C		$V_{CE(sat)}$ at I_C			
	W	A	V dc	V dc	V dc	(x 1000)	A dc	V dc	A dc		
2N6299	32	8	80	80	5	.75-18	4	2.0	4	TO66	540
2N6649	85	10	60	60	5	1-20	5	2.0	5	TO3	527
2N6650	85	10	80	80	5	1-20	5	2.0	5	TO3	527
2N7371	100	12	100	100	5	1-18	6	3.0	12	TO254	623
2N6051	150	12	80	80	5	1-10	6	3.0	12	TO3	501
2N6052	150	12	100	100	5	1-10	6	3.0	12	TO3	501
2N6286	175	20	80	80	7	1.25-18	10	3.0	20	TO3	505
2N6287	175	20	100	100	7	1.25-18	10	3.0	20	TO3	505

TABLE XI. N channel FETS.

	Device type no.	Maximum ratings					Primary electrical characteristics						Case	Spec
		P_T	V_{DG}	V_{DS}	V_{GS}	I_G	I_{GSS}	$V_{GS(OFF)}$ V		t_{ON}	t_{OFF}	I_{DSS} mA	C_{iss}		
		mW	V	V	V	mA	nA	Min	Max	ns	ns	Min/Max	pF		
	2N5545	250	50		50	30							6	TO71	430
	2N5546	250	50		50	30							6	TO71	430
	2N5547	250	50		50	30							6	TO71	430
	2N3821	300	50	50	50	10			4			.5/2.5	6	TO72	375
	2N3822	300	50	50	50	10			6			2/10	6	TO72	375
	2N3823	300	30	30	30	10			8			4/20	6	TO72	375
C	2N4856	360	40	40	40	50	.25	4	10	6	25	50/---	18	TO18	385
C	2N4857	360	40	40	40	50	.25	2	6	6	50	20/100	18	TO18	385
C	2N4858	360	40	40	40	50	.25	.8	4	10	100	8/80	18	TO18	385

TABLE XII. P-channel FETS.

Device type no.	Maximum ratings					Primary electrical characteristics						Case	Spec
	P_T	V_{DG}	V_{DS}	V_{GS}	I_G	I_{GSS}	$V_{GS(OFF)}$ V		t_{ON}	t_{OFF}	I_{DSS} mA	C_{iss}		
	mW	V	V	V	mA	nA	Min	Max	ns	ns	Min/Max	pF		
2N5114	500	30	30	30	50	1000	5	10	6	6	30/90	25	TO18	476
2N5115	500	30	30	30	50	1000	3	6	10	8	15/60	25	TO18	476
2N5116	500	30	30	30	50	1000	1	4	25	20	5/25	27	TO18	476

TABLE XIII. Power rectifiers.

	Device type no.	I_O A dc	V_{RWM} V pk	V_F at I_F V dc	V_F at I_F A dc	V_{FM} at I_F V pk	V_{FM} at I_F A pk	I_R at V_{RWM} mA dc 25°C	I_R at V_{RWM} mA dc 150°C	t_{rr} ns	Spec
C U	1N5616	1	400			1.3	3	.5	25	2000	427
C U	1N5618	1	600			1.3	3	.5	25	2000	427
C U	1N5620	1	800			1.3	3	.5	25	2000	427
C U	1N5622	1	1000			1.3	3	.5	25	2000	427
C U	1N5551	3	400			1.6	9	1	75	2000	420
C U	1N5552	3	600			1.6	9	1	75	2000	420
C U	1N5553	3	800			1.6	9	1	75	2000	420
C U	1N5554	3	1000			1.6	9	1	75	2000	420
	1N1202A	12	200			1.35	38	50	1000		260
	1N1204A	12	400	2.5	12	1.35	38	50	1000		260
	1N1206A	12	600	2.5	12	1.35	38	50	1000		260
	1N3671A	12	800	2.5	12	1.35	38	50	1000		260
	1N3673A	12	1000	2.5	12	1.35	38	50	1000		260
	1N1186	35	200	2.5	35	1.4	110		3000		297
	1N1188	35	400	2.5	35	1.4	110		3000		297
	1N1190	35	600	2.5	35	1.4	110		3000		297
	1N3766	35	800	2.5	35	1.4	110		3000		297
	1N3768	35	1000	2.5	35	1.4	110		3000		297

TABLE XIV. Schottky barrier rectifiers.

	Device type no.	I_O A	V_R Vdc	V_{FM1} at I_{FM} V pk	V_{FM1} at I_{FM} A pk	V_{FM2} at I_{FM} V pk	V_{FM2} at I_{FM} A pk	Case	Spec
C U	1N5819-1	1.0	45	.34	.10	.49	1	DO-41	586
C U	1N5822	3.0	45	.40	1	.50	3	DO-41	620
	1N6492	4.5	45	.68	4	.56	2	TO-39	567
	1N6702	5.0	40	.44	3	.47	5	DO-41	627
	1N6391	22.5	45	.68	50	.48	5	DO-4	553
	1N6660	15	45	.55	5	1.0	30	TO-254	608
	1N6392	54	45	.82	120	.68	60	DO-5	554

1N6660 is a DUAL SCHOTTKY.

TABLE XV. Fast recovery rectifiers

	Device type no.	I_O A dc	V_{RWM} V pk	V_F at I_F V dc	V_F at I_F A dc	V_{FM} at I_F V pk	V_{FM} at I_F A pk	I_R at V_{RWM} mA dc 25°C	I_R at V_{RWM} mA dc 150°C	t_{rr} ns	Spec
C U	1N5615	1	200			1.6	3	.5	25	150	429
C U	1N5617	1	400			1.6	3	.5	25	150	429
C U	1N5619	1	600			1.6	3	.5	25	250	429
C U	1N5621	1	800			1.6	3	.5	25	300	429
C U	1N5623	1	1000			1.6	3	.5	25	300	429
U	1N6623	1.5	800			1.8	2	.5	150	50	585
U	1N6624	1.5	900			1.8	2	.5	150	50	585
U	1N6625	1.5	1000			1.95	2	1	200	60	585
U	1N6620	2.0	200			1.6	2	.5	150	30	585
U	1N6621	2.0	400			1.6	2	.5	150	30	585
U	1N6622	2.0	600			1.6	2	.5	150	30	585
C U	1N5804	2.5	100	.875	1	.975	2.5	1	50	25	477
C	1N5806	2.5	150	.875	1	.975	2.5	1	50	25	477
U	1N6631	2.5	1000			1.95	3	4	600	60	590
U	1N5417	3	200	1.2	1.5	1.2	9	1	20	150	411
	1N5418	3	400	1.2	1.5	1.2	9	1	20	150	411
U	1N5419	3	500	1.2	1.5	1.2	9	1	20	250	411
U	1N5420	3	600	1.2	1.5	1.2	9	1	20	400	411
U	1N6629	3	800			1.7	4	2	500	50	590
U	1N6630	3	900			1.7	4	2	500	50	590
U	1N6626	4	200			1.5	2.5	2	500	30	590
U	1N6627	4	400			1.5	4	2	500	30	590
U	1N6628	4	600			1.5	4	2	500	30	590
C	1N5809	6	100	.875	4	.925	6	5	150	30	477
C	1N5811	6	150	.875	4	.925	6	5	150	30	477
D	1N6768	8	50	0.97	4.0	1.06	8	50	5000	35	644
D	1N6769	8	100	0.97	4.0	1.06	8	50	5000	35	644
D	1N6770	8	150	0.97	4.0	1.06	8	50	5000	35	644
D	1N6771	8	200	0.97	4.0	1.06	8	50	5000	35	644
D	1N6772	8	400	1.45	4.0	1.60	8	50	5000	60	645
D	1N6773	8	600	1.45	4.0	1.60	8	50	5000	60	645
D	1N6762	12	50	0.95	6.0	1.05	12	50	5000	60	642
D	1N6763	12	100	0.95	6.0	1.05	12	50	5000	60	642
D	1N6764	12	150	0.95	6.0	1.05	12	50	5000	60	642
D	1N6765	12	200	0.95	6.0	1.05	12	50	5000	60	642
D	1N6766	12	400	1.35	6.0	1.55	12	50	5000	60	643
D	1N6767	12	600	1.35	6.0	1.55	12	50	5000	60	643
	1N3891A	12	200			1.5	38	15	2000	200	304
	1N3893A	12	400			1.5	38	15	2000	200	304
	1N6774	15	50	1.00	8	1.10	15	50	5000	35	646
	1N6775	15	100	1.00	8	1.10	15	50	5000	35	646
	1N6776	15	150	1.00	8	1.10	15	50	5000	35	646
	1N6777	15	200	1.00	8	1.10	15	50	5000	35	646
	1N6778	15	400	1.40	8	1.60	15	50	5000	60	647
	1N6779	15	600	1.40	8	1.60	15	50	5000	60	647
D	1N6657	15	100			1.2	20	10	1000	35	616
D	1N6658	15	150			1.2	20	10	1000	35	616
D	1N6659	15	200			1.2	20	10	1000	35	616
D	1N6672	15	300			1.2	20	10	1000	35	617
D	1N6673	15	400			1.2	20	10	1000	35	617
D	1N6674	15	500			1.2	20	10	1000	35	617
C	1N5814	20	100			.86	10	10	75	35	478
C	1N5816	20	150			.86	10	10	75	35	478
	1N3911A	30	200			1.4	50	15	6000	15	308
	1N3913A	30	400			1.4	50	15	6000	200	308
C	1N6305	70	100			.975	70	25	3000	50	550
C	1N6306	70	150			.975	70	25	3000	50	550

D signifies DUAL diode

TABLE XVI. Switching diodes.

	Device type no.	t_{rr} ns	V_{RWM} Vpk	V_F at I_F V	V_F at I_F mA	C pF	I_R at V_{RWM} mA 25°C	I_R at V_{RWM} mA 150°C	Spec
C U	1N5712-1	--	16	1	35		.15	100	445
C U	1N6677-1	--	40	0.37	20		.2	200	444
C U	1N5711-1	--	50	1	15		.2	200	444
	1N5719	--	100	1	100	.3	.25	15	443
	1N4153-1	4	50	.75	10	2	.05	50	337
	1N4454-1	4	50	1	10	2	.1	100	144
U	1N6640	4	50	.86	50	2.5	.1	100	609
U	1N6639	4	100	1.2	500	2.5	.1	100	609
U	1N6638	4.5	125	1.1	200	2	.5	100	578
U	1N6641	5	50	.86	50	3	.1	100	609
	1N4148-1	5	75	5	50	4	.5	100	116
U	1N6642	5	75	1.2	100	5	.5	100	578
	1N4150-1	6	50	.74	10	2.5	.1	100	231
U	1N6643	6	50	1.2	100	5	.5	160	578
C U	1N4938-1	50	175	1	100	5		.1	169
C U	1N3595-1	3000	125	1	200	8	.001	3	241
	1N645-1	---	225	1	.4		.05	100	240
U	1N6661	---	225	1	.4	20	.05	100	587
	1N647-1	---	400	1	.4		.05	100	240
U	1N6662	---	400	1	.4	20	.05	100	587
	1N649-1	---	600	1	.4		.05	100	240
U	1N6663	---	600	1	.4	20	.05	100	587

NOTES:
1. 1N5711, 5712-1 are SCHOTTKY Diodes. 1N5719 is a PIN Diode.
2. 1N4148-1, 1N4150-1, 1N4454-1, 1N4938-1 and 1N4153-1 are Dumet construction.
3. 1N66xx are Tungsten, Class 1 metallurgically bonded construction.

TABLE XVII. Zener diodes.

V_z (nom) (V dc)	Device type no. (listed by P_T and spec number)							
	127 1/	117 1/	435 1/	533	406	356 3/	124 2/	114 2/
	400 mW CHIP SM Axial	400 mW CHIP SM Axial	400 mW CHIP SM Axial	500 mW CHIP SM Axial	1.5 W CHIP SM Axial	5 W CHIP SM Axial	10 W DO4	50 W TO3
Volts								
1.8			1N4614-1					
2.0			1N4615-1					
2.2			1N4616-1					
2.4	1N4370A-1		1N4617-1	1N6309				
2.7	1N4371A-1		1N4618-1	1N6310				
3.0	1N4372A-1		1N4619-1	1N6311				
3.3	1N746A-1		1N4620-1	1N6312	1N6485			
3.6	1N747A-1		1N4621-1	1N6313	1N6486			
3.9	1N748A-1		1N4622-1	1N6314	1N6487			1N4557B
4.3	1N749A-1		1N4623-1	1N6315	1N6488			1N4558B
4.7	1N750A-1		1N4624-1	1N6316	1N6489			1N4559B
5.1	1N751A-1		1N4625-1	1N6317	1N6490			1N4560B
5.6	1N752A-1		1N4626-1	1N6318	1N6491	1N5968		1N4561B
6.2	1N753A-1		1N4627-1	1N6319	1N4460	1N5969		1N4562B
6.8	1N754A-1		1N4099-1	1N6320	1N4461	1N4954	1N2970B	1N2804B

TABLE XVII. Zener diodes - Continued.

V_z (nom) (V dc)	Device type no. (listed by P_T and spec number)							
	127 1/	117 1/	435 1/	533	406	356 3/	124 2/	114 2/
	400 mW	400 mW	400 mW	500 mW	1.5 W	5 W	10 W	50 W
Volts	CHIP SM Axial	CHIP SM Axial	CHIP SM Axial	CHIP SM Axial	CHIP SM Axial	CHIP SM Axial	DO4	TO3
7.5	1N755A-1		1N4100-1	1N6321	1N4462	1N4955	1N2971B	1N2805B
8.2	1N756A-1		1N4101-1	1N6322	1N4463	1N4956	1N2972B	1N2806B
8.7			1N4102-1					
9.1	1N757A-1		1N4103-1	1N6323	1N4464	1N4957	1N2973B	1N2807B
10.0	1N758A-1		1N4104-1	1N6324	1N4465	1N4958	1N2974B	1N2808B
11.0		1N962B-1	1N4105-1	1N6325	1N4466	1N4959	1N2975B	1N2809B
12.0	1N759A-1	1N963B-1	1N4106-1	1N6326	1N4467	1N4960	1N2976B	1N2810B
13.0		1N964B-1	1N4107-1	1N6327	1N4468	1N4961	1N2977B	1N2811B
14.0			1N4108-1					
15.0		1N965B-1	1N4109-1	1N6328	1N4469	1N4962	1N2979B	1N2813B
16.0		1N966B-1	1N4110-1	1N6329	1N4470	1N4963	1N2980B	1N2814B
17.0			1N4111-1					
18.0		1N967B-1	1N4112-1	1N6330	1N4471	1N4964	1N2982B	1N2816B
19.0			1N4113-1					
20.0		1N968B-1	1N4114-1	1N6331	1N4472	1N4965	1N2984B	1N2818B
22.0		1N969B-1	1N4115-1	1N6332	1N4473	1N4966	1N2985B	1N2819B
24.0		1N970B-1	1N4116-1	1N6333	1N4474	1N4967	1N2986B	1N2820B
25.0			1N4117-1					
27.0		1N971B-1	1N4118-1	1N6334	1N4475	1N4968	1N2988B	1N2822B
28.0			1N4119-1					
30.0		1N972B-1	1N4120-1	1N6335	1N4476	1N4969	1N2989B	1N2823B
33.0		1N973B-1	1N4121-1	1N6336	1N4477	1N4970	1N2990B	1N2824B
36.0		1N974B-1	1N4122-1	1N6337	1N4478	1N4971	1N2991B	1N2825B
39.0		1N975B-1	1N4123-1	1N6338	1N4479	1N4972	1N2992B	1N2826B
43.0		1N976B-1	1N4124-1	1N6339	1N4480	1N4973	1N2993B	1N2827B
47.0		1N977B-1	1N4125-1	1N6340	1N4481	1N4974	1N2995B	1N2829B
51.0		1N978B-1	1N4126-1	1N6341	1N4482	1N4975	1N2997B	1N2831B
56.0		1N979B-1	1N4127-1	1N6342	1N4483	1N4976	1N2999B	1N2832B
60.0			1N4128-1					
62.0		1N980B-1	1N4129-1	1N6343	1N4484	1N4977	1N3000B	1N2833B
68.0		1N981B-1	1N4130-1	1N6344	1N4485	1N4978	1N3001B	1N2834B
75.0		1N982B-1	1N4131-1	1N6345	1N4486	1N4979	1N3002B	1N2835B
82.0		1N983B-1	1N4132-1	1N6346	1N4487	1N4980	1N3003B	1N2836B
87.0			1N4133-1					
91.0		1N984B-1	1N4134-1	1N6347	1N4488	1N4981	1N3004B	1N2837B
100.0		1N985B-1	1N4135-1	1N6348	1N4489	1N4982	1N3005B	1N2838B
110.0		1N986B-1		1N6349	1N4490	1N4983	1N3007B	1N2840B
120.0		1N987B-1		1N6350	1N4491	1N4984	1N3008B	1N2841B
130.0		1N988B-1		1N6351	1N4492	1N4985	1N3009B	1N2842B
150.0		1N989B-1		1N6352	1N4493	1N4986	1N3011B	1N2843B
160.0		1N990B-1		1N6353	1N4494	1N4987	1N3012B	1N2844B
180.0		1N991B-1		1N6354	1N4495	1N4988	1N3014B	1N2845B
200.0		1N992B-1		1N6355	1N4496	1N4989	1N3015B	1N2846B
220.0						1N4990		
240.0						1N4991		
270.0						1N4992		
300.0						1N4993		
330.0						1N4994		
360.0						1N4995		
390.0						1N4996		

TABLE XVIII. Voltage reference diodes.

	Device type no.	Reference voltage V_{BR}		Voltage temperature mV_{BR}	Dynamic impedance Z at I_Z		Case	Spec
		Min	Max			mA		
		V	V	V	Ω		SM	
C	1N821-1	5.89	6.51	.096	15	7.5	7, 35	159
C	1N823-1	5.89	6.51	.048	15	7.5	7, 35	159
C	1N825-1	5.89	6.51	.019	15	7.5	7, 35	159
C	1N827-1	5.89	6.51	.009	15	7.5	7, 35	159
C	1N829-1	5.89	6.51	.005	15	7.5	7, 35	159
C	1N4565A-1	6.08	6.72	.100	200	.5	7, 35	452
C	1N4566A-1	6.08	6.72	.050	200	.5	7, 35	452
C	1N4567A-1	6.08	6.72	.020	200	.5	7, 35	452
C	1N4568A-1	6.08	6.72	.010	200	.5	7, 35	452
C	1N4569A-1	6.08	6.72	.005	200	.5	7, 35	452
C	1N4570A-1	6.08	6.72	.100	100	1	7, 35	452
C	1N4571A-1	6.08	6.72	.050	100	1	7, 35	452
C	1N4572A-1	6.08	6.72	.020	100	1	7, 35	452
C	1N4573A-1	6.08	6.72	.010	100	1	7, 35	452
C	1N4574A-1	6.08	6.72	.005	100	1	7, 35	452
C	1N4575A-1	6.08	6.72	.100	50	2	7, 35	452
C	1N4576A-1	6.08	6.72	.050	50	2	7, 35	452
C	1N4577A-1	6.08	6.72	.020	50	2	7, 35	452
C	1N4578A-1	6.08	6.72	.010	50	2	7, 35	452
C	1N4579A-1	6.08	6.72	.005	50	2	7, 35	452
C	1N4580A-1	6.08	6.72	.100	25	4	7, 35	452
C	1N4581A-1	6.08	6.72	.050	25	4	7, 35	452
C	1N4582A-1	6.08	6.72	.020	25	4	7, 35	452
C	1N4583A-1	6.08	6.72	.010	25	4	7, 35	452
C	1N4584A-1	6.08	6.72	.005	25	4	7, 35	452
	1N3154-1	7.98	8.82	.130	15	10	7, 35	158
	1N3155-1	7.98	8.82	.065	15	10	7, 35	158
	1N3156-1	7.98	8.82	.026	15	10	7, 35	158
	1N3157-1	7.98	8.82	.013	15	10	7, 35	158
	1N935B-1	8.55	9.45	.184	20	7.5	7, 35	156
	1N937B-1	8.55	9.45	.037	20	7.5	7, 35	156
	1N938B-1	8.55	9.45	.018	20	7.5	7, 35	156
	1N939B-1	8.55	9.45	.009	20	7.5	7, 35	156
	1N940B-1	8.55	9.45	.0037	20	7.5	7, 35	156
	1N941B-1	11.12	12.28	.239	30	7.5	7, 35	157
	1N943B-1	11.12	12.28	.047	30	7.5	7, 35	157
	1N944B-1	11.12	12.28	.024	30	7.5	7, 35	157
	1N945B-1	11.12	12.28	.012	30	7.5	7, 35	157

All are available in surface mount

TABLE XIX. High voltage diodes.

	Device type no.	V_{RWM}	I_O	t_{rr}	V_F at I_O	I_R at V_{RWM}		Spec
						µA dc		
		V dc	A dc	ns	V dc	25°C	150°C	
	1N6528	1,500	.25	70	3.0	.1	50	577
U	1N6520	1,500	.5	70	3.0	1	150	576
U	1N6512	1,500	1.5	70	3.0	1	150	575
	1N6529	2,000	.25	70	3.0	.1	50	577
U	1N6521	2,000	.5	70	3.0	1	150	576
U	1N6513	2,000	1.5	70	3.0	1	150	575
	1N6530	2,500	.1	70	7.0	.1	50	577
U	1N6522	2,500	.25	70	5.0	1	150	576
U	1N6514	2,500	1.0	70	5.0	1	150	575
	1N6531	3,000	.1	70	7.0	.1	50	577
U	1N6523	3,000	.25	70	5.0	1	150	576
U	1N6515	3,000	1.0	70	5.0	1	150	575
	1N6532	4,000	.05	70	9.0	.1	50	577
U	1N6524	4,000	.15	70	7.0	1	150	576
U	1N6516	4,000	.75	70	7.0	1	150	575
	1N6533	5,000	.05	70	9.0	.1	50	577
U	1N6525	5,000	.15	70	7.0	1	150	576
U	1N6517	5,000	.75	70	7.0	1	150	575
	1N6534	7,500	.025	70	14.0	.1	50	577
U	1N6526	7,500	.1	70	12.0	1	150	576
U	1N6518	7,500	.5	70	12.0	1	150	575
	1N6535	10,000	.025	70	14.0	.1	50	577
U	1N6527	10,000	.1	70	12.0	1	150	576
U	1N6519	10,000	.5	70	12.0	1	150	575

TABLE XX. Transient suppressor diodes (bidirectional).
MIL-PRF-19500/516

Series type		Breakdown voltage $V_{(BR)}$ Min 1/	Max 1/	Working peak voltage VM(wkg)	Maximum peak surge voltage V_{SM} 2/	Maximum peak surge current I_{SM} 3/	
500 W	1500 W	V dc	V dc	V dc	V(pk)	A(pk)	A(pK)
1N6103A	1N6139A	7.13	7.87	5.7	11.2	44.6	133.9
1N6104A	1N6140A	7.79	8.61	6.2	12.1	41.3	124.0
1N6105A	1N6141A	8.65	9.55	6.9	13.4	37.3	111.9
1N6106A	1N6142A	9.50	10.50	7.6	14.5	34.5	103.4
1N6107A	1N6143A	10.45	11.55	8.4	15.6	32.0	96.2
1N6108A	1N6144A	11.40	12.60	9.1	16.9	29.6	88.8
1N6109A	1N6145A	12.35	13.65	9.9	18.2	27.5	82.4
1N6110A	1N6146A	14.25	15.75	11.4	21.0	23.8	71.4
1N6111A	1N6147A	15.20	16.80	12.2	22.3	22.4	67.3
1N6112A	1N6148A	17.10	18.90	13.7	25.1	19.9	59.8
1N6113A	1N6149A	19.0	21.0	15.2	27.7	18.0	54.2
1N6114A	1N6150A	20.9	23.1	16.7	30.5	16.4	49.2
1N6115A	1N6151A	22.8	25.2	18.2	33.3	15.0	45.0
1N6116A	1N6152A	25.7	28.3	20.6	37.4	13.4	40.1
1N6117A	1N6153A	28.5	31.5	22.8	41.6	12.0	36.0
1N6118A	1N6154A	31.4	34.6	25.1	45.7	10.9	32.8
1N6119A	1N6155A	34.2	37.8	27.4	49.9	10.0	30.1
1N6120A	1N6156A	37.1	40.9	29.7	53.6	9.3	28.0
1N6121A	1N6157A	40.9	45.1	32.7	59.1	8.5	25.4
1N6122A	1N6158A	44.7	49.3	35.8	64.6	7.7	23.2
1N6123A	1N6159A	48.5	53.5	38.8	70.1	7.1	21.4
1N6124A	1N6160A	53.2	58.8	42.6	77.0	6.5	19.5
1N6125A	1N6161A	58.9	65.1	47.1	85.3	5.9	17.6
1N6126A	1N6162A	64.6	71.4	51.7	97.1	5.1	15.4
1N6127A	1N6163A	71.3	78.7	56.0	103.1	4.8	14.5
1N6128A	1N6164A	77.9	86.1	62.2	112.8	4.4	13.3
1N6129A	1N6165A	86.5	95.5	69.2	125.1	4.0	12.0
1N6130A	1N6166A	95.0	105.0	76.0	137.6	3.6	10.9
1N6131A	1N6167A	104.5	115.5	86.6	151.3	3.3	9.9
1N6132A	1N6168A	114.0	126.0	91.2	165.1	3.0	9.1
1N6133A	1N6169A	123.5	136.5	98.8	178.8	2.8	8.4
1N6134A	1N6170A	142.5	157.5	114.0	206.3	2.4	7.3
1N6135A	1N6171A	152	168	121.6	218.4	2.3	6.9
1N6136A	1N6172A	171	189	136.8	245.7	2.0	6.1
1N6137A	1N6173A	190	210	152.0	273.0	1.8	5.5

1/ Applies to both 500 W and 1500 W series.
2/ Applies to only 500 W series.
3/ Applies to only 1500 W series.
All are available in surface mount.

TABLE XX. Transient suppressor diodes (unidirectional) - Continued.

Device type number	Breakdown voltage $V_{(BR)}$ at I_{BR} Min	Working peak reverse voltage V_{RWM}	Test current t_p=300ms duty cycle ≤ 2 I_{BR}	Maximum clamping voltage $V_{C(max)}$ at I_p for t_p = 1 ms	Maximum peak pulse current (I_p)	
					t_p = 20 ms t_r = 8 ms	t_p = 1 ms t_r = 10 ms
	V dc	V(pk)	mA dc	V(pk)	A(pk)	A(pk)
MIL-PRF-19500/551 500 watts						
1N6461	5.6	5	25	9.0	315	56
1N6462	6.5	6	20	11.0	258	46
1N6463	13.6	12	5	22.6	125	22
1N6464	16.4	15	5	26.5	107	19
1N6465	27	24	2	41.4	69	12
1N6466	33	30.5	1	47.5	63	11
1N6467	43.7	40.3	1	63.5	45	8
1N6468	54	51.6	1	78.5	35	6

All are available in surface mount packages.

MIL-PRF-19500/552 1500 watts						
1N6469	5.6	5	50	9.0	945	167
1N6470	6.5	6	50	11.0	775	137
1N6471	13.6	12	10	22.6	374	66
1N6472	16.4	15	10	26.5	322	57
1N6473	27	24	5	41.4	206	36.5
1N6474	33	30.5	1	47.5	190	32
1N6475	43.7	40.3	1	63.5	136	24
1N6476	54	51.6	1	78.5	106	19

TABLE XXI. Thyristors (SCRs).

Device type no.
No part numbers listed.

TABLE XXII. Current regulator diodes.

Device type no.	I_P mA	Z_T MΩ	Z_K kΩ	V_r V	T_{CIP} at -55°C %/C°	T_{CIP} at 25°C %/C°	Case	Spec
1N5283-1	.22	25	2750	1	+1.35	-.006 +.70	DO-7	463
1N5284-1	.24	19	2350	1	+1.25	-.11 +.66	DO-7	463
1N5285-1	.27	14	1950	1	-.10 +1.15	-.12 +.58	DO-7	463
1N5286-1	.30	9	1600	1	-.15 +1.05	-.15 +.52	DO-7	463
1N5287-1	.33	6.6	1350	1	-.20 + .95	-.16 +.47	DO-7	463
1N5288-1	.39	4.1	1000	1.05	-.30 + .82	-.20 +.38	DO-7	463
1N5289-1	.43	3.3	870	1.05	-.32 + .75	-.22 +.33	DO-7	463
1N5290-1	.47	2.7	750	1.05	-.35 + .70	-.23 +.28	DO-7	463
1N5291-1	.56	1.9	560	1.10	-.40 + .55	-.26 +.20	DO-7	463
1N5292-1	.62	1.55	470	1.13	-.42 + .45	-.27 +.15	DO-7	463
1N5293-1	.68	1.35	400	1.15	-.45 + .40	-.28 +.12	DO-7	463
1N5294-1	.75	1.15	335	1.20	-.50 + .35	-.30 +.07	DO-7	463
1N5295-1	.82	1.00	290	1.25	-.52 + .27	-.31 +.03	DO-7	463
1N5296-1	.91	.88	240	1.29	-.56 + .20	-.32	DO-7	463
1N5297-1	1.00	.80	205	1.35	-.58 + .15	-.34	DO-7	463
1N5298-1	1.10	.70	180	1.40	-.60 + .10	-.36	DO-7	463
1N5299-1	1.20	.64	155	1.45	-.63 + .05	-.37	DO-7	463
1N5300-1	1.30	.58	135	1.50	-.65	-.38	DO-7	463
1N5301-1	1.40	.54	115	1.55	-.68	-.39	DO-7	463
1N5302-1	1.50	.51	105	1.60	-.70	-.40	DO-7	463
1N5303-1	1.60	.475	92	1.65	-.70	-.40	DO-7	463
1N5304-1	1.80	.42	74	1.75	-.72	-.41	DO-7	463
1N5305-1	2.00	.395	61	1.85	-.75	-.42	DO-7	463
1N5306-1	2.20	.37	52	1.95	-.76	-.42	DO-7	463
1N5307-1	2.40	.345	44	2.00	-.78	-.43	DO-7	463
1N5308-1	2.7	.32	35	2.15	-.80	-.43	DO-7	463
1N5309-1	3.0	.30	29	2.25	-.81	-.43	DO-7	463
1N5310-1	3.3	.28	24	2.35	-.82	-.44	DO-7	463
1N5311-1	3.6	.265	20	2.5	-.83	-.44	DO-7	463
1N5312-1	3.9	.255	17	2.6	-.84	-.45	DO-7	463
1N5313-1	4.3	.245	14	2.75	-.85	-.45	DO-7	463
1N5314-1	4.7	.236	12	2.9	-.86	-.45	DO-7	463

All are available in Surface Mount packages.
All are available in chip form.

TABLE XXIII. Voltage-variable-capacitance diodes.

Device type no.	C_T at 4 V dc	Capacitance ratio	V_{R1} to V_{R2}		V_{RWM}	Conditions		Q	Case	Spec
		max				freq	V_R			
	pF		V dc	V dc	V dc	MHz	V dc			
1N5139A	6.8	2.7	4	60	60	1	4	350	DO-7	383
1N5461C	6.8	2.9	2	30		50	4	600	DO-7	436
1N5462C	8.2	2.95	2	30		50	4	600	DO-7	436
1N5140A	10	2.8	4	60	60	1	4	300	DO-7	383
1N5463C	10	2.95	2	30		50	4	550	DO-7	436
1N5141A	12	2.8	4	60	60	1	4	300	DO-7	383
1N5464C	12	2.95	2	30		50	4	550	DO-7	436
1N5142A	15	2.8	4	60	60	1	4	250	DO-7	383
1N5465C	15	2.95	2	30		50	4	550	DO-7	436
1N5143A	18	2.8	4	60	60	1	4	250	DO-7	383
1N5466C	18	3	2	30		50	4	500	DO-7	436
1N5467C	20	3	2	30		50	4	500	DO-7	436
1N5468C	22	3.05	2	30		50	4	500	DO-7	436
1N5144A	22	3.2	4	60	60	1	4	200	DO-7	383
1N5469C	27	3.05	2	30		50	4	500	DO-7	436
1N5145A	27	3.2	4	60	60	1	4	200	DO-7	383
1N5470C	33	3.05	2	30		50	4	500	DO-7	436
1N5146A	33	3.2	4	60	60	1	4	200	DO-7	383
1N5471C	39	3.05	2	30		50	4	500	DO-7	436
1N5147A	39	3.2	4	60	60	1	4	200	DO-7	383
1N5472C	47	3.05	2	30		50	4	400	DO-7	436
1N5148A	47	3.2	4	60	60	1	4	200	DO-7	383
1N5473C	56	3.1	2	30		50	4	300	DO-7	436
1N5474C	68	3.1	2	30		50	4	250	DO-7	436
1N5475C	82	3.1	2	30		50	4	225	DO-7	436
1N5476C	100	3.1	2	30		50	4	200	DO-7	436

TABLE XXIV. Full wave bridge rectifiers.

Phase	Device type no.	I_O	I_{FSM}	I_r at V_r		Spec
		A	A	mA	V	
Single	M19500/469-01	10	100	2	200	469
Single	M19500/469-02	10	100	2	400	469
Single	M19500/469-03	10	100	2	600	469
Single	M19500/469-04	10	100	2	800	469
Single	M19500/469-05	10	100	2	1000	469
Single	SPA25	25	150	2	100	446
Single	SPB25	25	150	2	200	446
Single	SPC25	25	150	2	400	446
Single	SPD25	25	150	2	600	446
Three	M19500/483-01	25	150	2	200	483
Three	M19500/483-02	25	150	2	400	483
Three	M19500/483-03	25	150	2	600	483
Three	M19500/483-04	25	150	2	800	483

NOTE: Package outlines for these bridge rectifiers are shown in their respective detail specifications.

TABLE XXV. Multiple diode arrays.

Device type no.	I_O	V_F at I_F		I_R at V_R		t_{rr}	C_T	Case	Spec
	mA	V	mA	mA	V	ns	pF		
1N5768	300	1.5	500	.1	40	20	4	FLAT	474
1N5770	300	1.5	500	.1	40	20	8	FLAT	474
1N5772	300	1.5	500	.1	40	20	8	FLAT	474
1N5774	300	1.5	500	.1	40	20	8	FLAT	474
1N6496	300	1.5	500	.1	40	20	8	FLAT	474
1N6506	300	1.5	500	.1	40	20	4	14 DIP	474
1N6507	300	1.5	500	.1	40	20	8	14 DIP	474
1N6508	300	1.5	500	.1	40	20	8	14 DIP	474
1N6509	300	1.5	500	.1	40	20	8	14 DIP	474
1N6100	300	1.0	100	.025	20	5	4	FLAT	474
1N6101	300	1.0	100	.025	20	5	4	14 DIP	474
1N6510	300	1.0	100	.025	20	5	4	FLAT	474
1N6511	300	1.0	100	.025	20	5	4	14 DIP	474

NOTE: Pinouts and case outlines for these multiple diode arrays are shown in the detail specification.

TABLE XXVI. Light emitting diodes.

Device type no.	Color	Iv mcd		C pF	V_F V dc	Wavelength nm		Spec
		Min	Max			Min	Max	
1N6609	Red	20	---	100	3	590	695	519
1N6610	Yellow	20	---	100	3	550	660	520
1N6611	Green	20	---	100	3	525	600	521

NOTE: These devices are right-angle P.C. board mounted fault indicators:

1N6493	Red	1	---	100	3	595	695	572
1N6494	Yellow	1	---	100	3	570	595	572
1N6495	Green	.8	---	100	3	525	580	572
1N6497	Red	.5	---	500	20	595	695	574
1N6498	Yellow	.5	---	500	20	570	595	574
1N6499	Green	.5	---	500	25	525	580	574

These devices are internally current limited to operate on any voltage from 3 to 30 V dc with no external current limiting resistor.

TABLE XXVII. PNP dual transistors.

	Device type no.	Maximum ratings at T_A = 25°C					Primary electricals					Case	Spec
		P_t One/both side(s) mW	I_C mA dc	V_{CB} V dc	V_{CE} V dc	V_{BE} V dc	h_{FE} at I_C	mA	C_{obo} max pF	NF dB	f_t MHz		
	2N3810	500/600	50	60	60	5	150-450	1.0	5	2.5	100-500	TO77	336
	2N3811	500/600	50	60	60	5	300-900	1.0	5	2.5	100-500	TO77	336
U	2N5796	500/600	600	60	60	5	100-300	150	8				496

TABLE XXVIII. NPN dual transistors.

	Device type no.	Maximum ratings at T_A = 25°C					Primary electricals					Case	Spec
		P_t One/both side(s) mW	I_C mA dc	V_{CB} V dc	V_{CE} V dc	V_{BE} V dc	h_{FE} at I_C	mA	C_{obo} max pF	NF dB	f_t MHz		
	2N2920	300/500	30	70	60	6	175-600	0.1	5	3.0	60-400	TO77	355
U	2N5794	500/600	600	75	40	6	100-300	150	8				495
U	2N2060	540/600	500	100	60	7	40-120	1.0	15	8.0	60-500	TO77	270

TABLE XXIX. Dual transistors, complementary.

	Device type no.	Maximum ratings					Primary electricals						Case	Spec
		P_T One/both side(s) mW	I_C mA	V_{CB} V	V_{CE} V	V_{EB} V	h_{FE} at I_C	mA	$V_{CE(sat)}$ V	at I_C mA	C pF			
	2N3838	250/350	600	60	40	5	100/300	150	.4	150	300			421
U	2N4854	300/600	600	60	40	5	100/300	150	.4	150	300			421

TABLE XXX. Optically coupled isolators.

		LED section				Photo transistor					Total device			
	Device type no.	I_F	I_P	V_F at I_F		V_{CEO}	V_{CBO}	V_{EBO}	V_{CE} at I_C (SAT)		I_{CEX}		t_r and t_f	Spec
		mA	mA	V	mA	V	V	V	V	mA	I_F = 10 mA	I_F = 2 mA	ms	
	4N47	40	1	1.5	10	40	45	7	.3	2.0	30	.5	20	548
	4N48	40	1	1.5	10	40	45	7	.3	2.0	30	1.0	20	548
	4N49	40	1	1.5	10	40	45	7	.3	2.0	30	2.0	25	548

All have surface mount packages

TABLE XXXI. Radiation Hardened MOSFETs.

		Maximum ratings				Primary electrical characteristics					Channel
	Device type no.	P_T @ T_C =25°C W	V_{DS} V	V_{GS} V	I_D @ T_C = 25°C A	$r_{DS(on)}$ @ V_{GS} =10 V max Ω	g_{fs} min	g_{fs} max	Case TO-	Spec	
U	2N7389	25	100	±20	6.5	0.30	2.5		205	630	P
U	2N7390	25	200	±20	4.0	0.80	2.5		205	630	P
	2N7395	25	100	±20	8.0	0.23			205	631	N
	2N7396	25	200	±20	5.0	0.46			205	631	N
	2N7397	25	250	±20	4.0	0.61			205	631	N
	2N7398	25	500	±20	2.0	2.50			205	631	N
	2N7399	50	100	±20	11.0	0.21			257	632	N
	2N7400	50	200	±20	8.0	0.44			257	632	N
	2N7401	50	250	±20	6.0	0.60			257	632	N
	2N7402	50	500	±20	3.0	2.70			257	632	N
	2N7403	125	100	±20	22.0	0.14			254	633	P
	2N7404	125	200	±20	15.0	0.29			254	633	P
	2N7405	125	100	±20	25.0	0.07			254	634	P
	2N7406	125	200	±20	24.0	0.11			254	634	P
	2N7407	125	250	±20	18.0	0.17			254	634	P
	2N7408	125	500	±20	9.0	0.60			254	634	P
	2N7410	15	100	±20	3.5	0.60			205	638	N
	2N7411	15	100	±20	2.5	1.30			205	639	P
U	2N7424U	300	60	±20	48	0.045			S.M.	655	P
U	2N7425U	300	100	±20	38	0.068			S.M.	655	P
U	2N7426U	300	200	±20	23	0.230			S.M.	655	P
	2N7424	250	60	±20	35	0.050			254	660	P
	2N7425	250	100	±20	35	0.073			254	660	P
	2N7426	250	200	±20	23	0.230			254	660	P
	2N7422	150	100	±20	22	0.080			254	662	P
	2N7423	150	200	±20	14	0.315			254	662	P
	2N7431	250	60	±20	35	0.021			254	663	N
	2N7432	250	100	±20	35	0.045			254	663	N
	2N7433	250	200	±20	35	0.070			254	663	N
U	2N7431U	300	60	±20	75	0.015			S.M.	663	N
U	2N7432U	300	100	±20	51	0.040			S.M.	663	N
U	2N7433U	300	200	±20	43	0.070			S.M.	663	N

Device	Table	Device	Table	Device	Table	Device	Table	Device	Table
1N645-1	16	1N973B-1	17	1N2824B	17	1N2995B	17	1N4112-1	17
1N647-1	16	1N974B-1	17	1N2825B	17	1N2997B	17	1N4113-1	17
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1N757A-1	17	1N987B-1	17	1N2838B	17	1N3015B	17	1N4126-1	17
1N758A-1	17	1N988B-1	17	1N2840B	17	1N3154-1	18	1N4127-1	17
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1N4473	17	1N4577A-1	18	1N4973	17	1N5289	22	1N5473C	23
1N4474	17	1N4578A-1	18	1N4974	17	1N5290	22	1N5474C	23
1N4475	17	1N4579A-1	18	1N4975	17	1N5291	22	1N5475C	23
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1N4477	17	1N4581A-1	18	1N4977	17	1N5293	22	1N5552	13
1N4478	17	1N4582A-1	18	1N4978	17	1N5294	22	1N5553	13
1N4479	17	1N4583A-1	18	1N4979	17	1N5295	22	1N5554	13
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1N4484	17	1N4617-1	17	1N4984	17	1N5300	22	1N5619	15
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1N4486	17	1N4619-1	17	1N4986	17	1N5302	22	1N5621	15
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1N4565A-1	18	1N4961	17	1N5144A	23	1N5461C	23	1N5822	14
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1N6129A	20	1N6171A	20	1N6346	17	1N6513	19	1N6642	16
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Device	Table	Device	Table	Device	Table	Device	Table	Device	Table
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2N2920	28	2N4453	2	2N6058	9	2N6796	6	2N7390	31
2N2945A	2	2N4854	33	2N6059	9	2N6798	6	2N7395	31
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2N3251A	2	2N4858	11	2N6212	4	2N6804	7	2N7398	31
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Custodians:
Army - CR
Navy - EC
Air Force - 17
NASA-NA
DLA - CC

Review activities:
Army - AR, MI, SM
Navy - AS, CG, MC, OS, SH
Air Force - 19, 85, 99
NASA - NA

Preparing activity:
DLA-CC

(Project 5961-2229)

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5. REASON FOR RECOMMENDATION

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a. Point of Contact Alan Barone	b. TELEPHONE Commercial: 614-692-0510 DSN: 850-0510 FAX: 614-692-6939 EMAIL: alan_barone@dscc.dla.mil
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