NOT MEASUREMENT SENSITIVE

MIL-STD-701P

20 November 1992

SUPERSEDING

MIL-STD-701N

31 JANUARY 1990

MILITARY STANDARD

LIST OF STANDARD SEMICONDUCTOR DEVICES

AMSC N/A

FSC 59GP

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FOREWORD

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

2. Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Director, Space and Naval Warfare Systems Command, Department of the Navy, ATTN: SPAWAR 211C, Washington, DC 20363 by using the self-addressed 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 standard establishes the requirements for the selection of semiconductor devices used in the design and manufacture of military equipment.

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specification. The following specification, forms a part of this specification to the extent specified herein. Unless otherwise specified, the issues of these documents shall be those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation.

SPECIFICATION

MILITARY

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

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Naval Publications and Forms Center, (ATTN: NPODS), 5801 Tabor Avenue, Philadelphia, PA 19120-5099.)

2.2 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 standard are defined in MIL-S-19500.

4. GENERAL REQUIREMENTS

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

a. To provide equipment designers and manufacturers with lists of semiconductor devices considered to be 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 standard.

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

4.3 Use of semiconductor devices.

4.3.1 Controlled characteristics. Satisfactory equipment performance shall depend only on a semiconductor device characteristic which is controlled by the applicable MIL-S-19500 detail specification.

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

4.4 Criteria for inclusion in this standard.

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

b.
Continued availability of the semiconductor device shall be reasonably certain.

c.
The semiconductor device shall have an approved military specification.

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 standard are covered in the applicable detail specification.) All devices listed herein are silicon types except for the optical devices listed in tables XXVI and XXX.

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. All quality level parts may be freely and interchangeably substituted for lower quality levels.

4.5.1.1 Dash one (-1) parts. Where dash one (-1) parts are available on the detail specification and listed on QPL-19500, only those -1 parts are to be considered as the preferred types and interchangeably substituted for for non (-1) devices.

4.5.1.2 JAN**P Quality level. JANTXP parts may be freely and interchangeably substituted for JANTX and JAN devices and JANTXVP parts may be freely and interchangeably substituted for JANTXV, JANTX and JAN devices.

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. Case configurations are available in each applicable specification.

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

5. DETAILED REQUIREMENTS (not applicable).

6. NOTES

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

6.1 Dimensions are in inches.

6.2 Metric equivalents are given for general information only.

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6.3 International standardization agreements. Certain provisions of this standard are the subject of international standardization agreement NATO Electronic Parts Recommendation (NEPR) 19. When revision or cancellation of this standard is proposed which will affect or violate the international agreement concerned, the preparing activity will take appropriate reconciliatory action through international standardization channels, including departmental standardization offices, if required.

6.4 Parameter values. Every reasonable effort is made to insure that this standard 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 detail specification.

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

6.6 Case outline. Surface mount identifiers indicate inclusion of a surface mount case configuration on the specification. Case dimensions must be obtained from the specification and a surface mount identifier in this standard does not guarantee QPL availability.

6.7 Subject terms (key word) listing.

Semiconductor device
Diode
Rectifier
Transistor
Thyristor

6.8 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.

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CONCLUDING MATERIAL

Custodians:
Army - ER
Navy - EC
Air Force - 17

Review activities:
Army - MI, SM, AT
Navy - SH
Air Force -11, 85
DLA - ES
NASA - NA

User activities:
Navy - AS, CG, OS, MC
Air Force - 19

International Interest (see 6.3).

Preparing activity:
Navy - EC

Agent:
DLA - ES

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TABLE I. NPN low power transistors.

	Device type no.	Maximum ratings				Primary electrical characteristics						Case	Spec
		P_T mW	I_C mA	V_{BR} CBO V dc	V_{BR} CEO V dc	V_{BR} EBO V dc	h_{FE} at I_C	mA	$V_{CE(sat)}$ @ I_C V dc	mA	Cobo pF		
	2N4449	300		40	15	4.5	40/120	10	0.2	10	4.0	T046	317
	2N2369A	360		40	15	4.5	40/120	10	0.2		4.0	T018	317
	2N2484	360	50	60	60	6.0	200/500	0.01	0.3	1	5.0	T018	376
	2N3013	360	300	40	20	5.0	35/120	30	0.18	30	5.0	T052	287
'U'	2N2222A	500	800	75	50	6.0	100/300	150	1.0	500	8.0	T018	255
	2N5582	500	800	75	50	6.0	100/300	150	1.0	50	8.0	T046	423
	2N3700	500	1000	140	80	7.0	50/200	500	0.2	150	12.0	T018	391
	2N3737	500	1500	75	50	5.0	40/140	500	0.5	500	9.0	T046	395
	2N2219A	800	800	75	50	6.0	100/300	150	1.0	500	8	T05	251
	2N3019	800	1000	140	80	7.0	100/300	150	0.2		12	T05	391
	2N3440	800	1000	300	250	7.0	40/160	20	0.5	50	10	T05	368
	2N3439	800	1000	450	350	7.0	40/160	20	0.5	50	10	T05	368
	2N3501	1000	300	150	150	6.0	100/300	150	.4	150	8	T05	366
	2N3735	1000	1500	75	50	5.0	40/140	500	.5	500	9	T05	395
	2N3507	1000	3000	80	50	5.0	30/150	1500	1.0	1500	40	T05	349
	2N3421	1000	3000	125	80	8.0	40/120	1000	.25	1000	150	T05	393
	2N5339	1000	5000	100	100	6.0	60/240	2000	.7	2000	250	T039	560
	2N5666	1200	5000	250	200	6.0	40/120	1000	.4	3000	90	T05	455
	2N5667	1200	5000	400	300	6.0	25/75	1000	.4	3000	90	T05	455
	2N4150	1500	10000	100	70	7.0	40/120	5000	.6	5000	350	T05	394
	2N5237	1500	10000	150	120	7.0	40/120	5000	.6	5000	350	T05	394

NOTE: Quad 2N2222 is 2N6989 in a 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 mW	I_C mA	V_{BR} CBO Vdc	V_{BR} CEO Vdc	V_{BR} EBO Vdc	h_{FE} at I_C	mA	$V_{CE(sat)}$ at I_C Vdc	mA	C_{obo} pF		
	2N4261	200	30	15	15	4.5	30/150	10	0.15	1	2	T072	511
	2N3251A	360	200	60	60	5.0	100/300	10	0.25	10	6	T018	323
	2N2605	400	30	70	60	6.0	100/300	.01	.5	10	6	T046	354
	2N2945A	400	100	25	20	25.0	70/---	1		10		T046	382
	2N2946A	400	100	40	35	40.0	50/---	1		10		T046	382
'U'	2N2907A	400	600	60	60	5.0	100/300	150	1.6	500	8	T018	291
	2N3486A	400	600	60	60	5.0	100/300	150	1.6	500	8	T046	392
	2N3764	500	1500	40	40	5.0	30/120	1000	.5	500	15	T046	396
	2N2905A	600	600	60	60	5.0	100/300	150	1.6	500	8	T05	290
	2N5416	750	1000	350	300	6.0	30/120	50	2.0	50	15	T05	485
	2N4033	800	1000	80	80	5.0	100/300	100	.2	150	10	T039	512
	2N3743	1000	50	300	300	5.0	50/200	30	1.2	30	15	T039	397
	2N3467	1000	1000	40	40	5.0	40/120	500	.6	500	25	T05	348
	2N3637	1000	1000	175	175	5.0	100/300	50	.9	50	10	T05	357
	2N3762	1000	1500	40	40	5.0	30/120	1000	.5	500	15	T039	396
	2N5153	1000	2000	100	80	5.5	70/200	2500	1.5	5000	250	T039	545
	2N3868	1000	3000	60	60	4.0	30/150	1500	.75	1500	120	T05	350
	2N6193	1000	5000	100	100	6.0	60/240	2000	.7	2000	300	T039	561

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

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TABLE III. NPN power transistors.

Device type no.	P_T	Maximum ratings				Primary electricals					Case	Spec
		I_C	V_{BR} CBO	V_{BR} CEO	V_{BR} EBO	h_{FE} @ I_C		VCE_{sat} @I_C		f_t		
	W	A	Vdc	Vdc	Vdc		A	max	A	Mhz		
2N3739	10	3	325	300	6.0	40/200	0.1	2.5	0.25	10/60	T066	402
2N3767	25	4	100	80	6.0	40/160	0.5	1.0	0.5		T066	518
2N2151	30	2	150	100	8.0	40/120	1.0	0.1	1.0	10/70	T059	277
2N3997	30	5	100	80	8.0	80/240	1.0	2.0	5.0	40/	T0111	374
2N2880	30	5	110	80	8.0	40/120	1.0	.25	1.0	20/120	STUD	315
2N5664	30	5	250	200	6.0	40/120	1.0	0.4	3.0	20/70	T066	455
2N5665	30	5	400	300	6.0	25/75	1.0	0.4	3.0	20/70	T066	455
2N3585	35	2	500	300	6.0	25/100	1.0	.75	1.0	15/75	T066	384
2N3879	35	7	120	75	7.0	20/80	4.0	1.2	4.0		T066	526
2N2814	50	10	120	80	8.0	50/150	1.0	0.5	5.0	15/70	T061	415
2N5004	58	5	100	80	5.5	70/200	2.5	1.5	5.0		T059	534
2N5157	100	3.5	700	500	6.0	30/90	1.0	0.8	1.0	2.5/12	T03	371
2N3442	117	10	160	140	7.0	20/70	3.0	1.0	3.0	0.1	T03	370
2N5038	140	20	150	90	7.0	50/200	2.0	1.0	12	60/200	T03	439
2N5672	140	30	150	120	7.0	20/100	15	.75	15	50/200	T03	488
2N6033	140	40	150	120	7.0	10/50	40	1.0	40		T03	528
2N6671	150	8	450	300	8.0	10/80	1.0	1.0	5		T03	536
2N6673	150	8	650	400	8.0	10/80	1.0	1.0	5		T03	536
2N5241	150	10	400	400	6.0	15/35	2.5	0.7	2.5		T03	414
2N3716	150	10	100	80	7.0	30/120	3.0	1.0	5	4/20	T03	408
2N6249	175	10	300	200	6.0	10/50	10	1.5	10		T03	510
2N6250	175	10	375	275	6.0	8/50	10	1.5	10		T03	510
2N6251	175	10	450	350	6.0	6/50	10	1.5	10		T03	510
2N6546	175	15		300	9.0	12/60	5	1.5	10		T03	525
2N6547	175	15		400	9.0	12/60	5	1.5	10		T03	525
2N6674	175	15	450	300	7.0	15/40	1	1.0	10		T03	537
2N6676	175	15	450	300	8.0	15/40	1	1.0	15		T03	538
2N6675	175	15	650	400	7.0	15/40	1	1.0	10		T03	537
2N6678	175	15	650	400	8.0	15/40	1	1.0	15		T03	538
2N6338	200	25	120	100	6.0	30/120	10	1.0	10		T03	509
2N5302	200	30	60	60	5.0	15/60	15	.75	10	2/20	T03	456
2N5303	200	20	80	80	5.0	15/60	10	1.0	10	2/20	T03	456
2N5685	300	50	60	60	5.0	15/60	25	1.0	25	2/20	T03	464
2N5686	300	50	80	80	5.0	15/60	25	1.0	25	2/20	T03	464
2N5250	350	50	125	100	10	15/50	40	1.0	40	20/70	T0114	380
2N5251	350	50	180	150	10	15/50	40	1.3	40		T0114	380

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TABLE IV. PNP power transistors.

Device type no.	P_T W	Maximum ratings I_C A	V_{BR} CBO Vdc	V_{BR} CEO Vdc	V_{BR} EBO Vdc	Primary electrical characteristics f_t h_{FE}	@ I_C	V_{CE} (sat)	@ I_C	f_t (MHz)	Case	Spec
2N3741	25	4	80	80	7.0	30/100	0.25	0.6	1.0	4/20	T066	461
2N6211	35	2	275	225	6.0	30/175	1.0	1.4	1.0	5	T066	461
2N6212	35	2	350	300	6.0	35/175	1.0	1.6	1.0	5	T066	461
2N6213	35	2	400	350	6.0	30/175	1.0	2.0	1.0	20/100	T066	461
2N5005	58	10	100	80	5.5	70/200	2.5	1.5	5.0		T059	535
2N3792	150	10	80	80	7.0	30/120	3.0	1.0	5.0	4/20	T03	379
2N4399	200	30	60	60	5.0	15/60	15.0	0.75	5.0	4/40	T03	433
2N5745	200	20	80	80	5.0	15/60	10.0	1.0	10.0	2/40	T03	433
2N6438	200	25	140	120	6.0	25/100	10.0	1.0	10.0		T03	508
2N5683	300	50	60	60	5.0	15/60	25.0	1.0	25.0		T03	466
2N5684	300	50	80	80	5.0	15/60	25.0	1.0	25.0		T03	466

TABLE V. RF transistors.

Device type no.	Maximum ratings P_T W	F MHz	P_{out} W	G_{PE} dB	Primary electrical characteristics I_C A	$V_{(BR)}$ CBO Vdc	$V_{(BR)}$ CEO Vdc	$V_{(BR)}$ EBO Vdc	h_{FE} at I_C	mA	FT MHz	Spec
2N4957	.2			25	.03	30	30	3.0	30/165	5.0	1200/3600	426
2N918	.3		.03	15	.05	30	15	3.0	20/200	3.0	600/	301
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

ALL RF DEVICES ARE NPN EXCEPT 2N4957

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TABLE VI. N-channel power MOSFETs.

	Device type no.	Maximum ratings				Primary electrical characteristics					Case	Spec
		P_T @ T_C	V_{DS}	V_{GS}	I_D @ T_C	$V_{GS(th)}$ min at I_D		$r_{DS(on)}$ @ V_{GS}	g_{fs}			
		=25°C W	V	V	= 25°C A	max	mA	=10 V max Ω	min	max	TO-	
	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
	2N6782	15	100	±20	3.50	2/4	0.25	.6	1.0	3.0	39	556
	2N6784	15	200	±20	2.25	2/4	0.25	1.5	0.9	2.7	39	556
	2N6786	15	400	±20	1.25	2/4	0.25	3.6	0.7	2.1	39	556
	2N6788	20	100	±20	6.0	2/4	0.25	.30	1.5	4.5	39	555
	2N6790	20	200	±20	3.5	2/4	0.25	.80	1.5	4.5	39	555
	2N6792	20	400	±20	2.0	2/4	0.25	1.80	1.0	3.0	39	555
	2N6794	20	500	±20	1.5	2/4	0.25	3.00	1.0	3.0	39	555
	2N6796	25	100	±20	8.0	2/4	0.25	.18	3.0	4.0	39	557
	2N6798	25	200	±20	5.5	2/4	0.25	.4	2.5	7.5	39	557
	2N6800	25	400	±20	3.0	2/4	0.25	1.0	2.0	6.0	39	557
	2N6802	25	500	±20	2.5	2/4	0.25	1.5	1.5	4.5	39	557
	2N6966	70	100	±20	15	2/4	0.25	0.085	6.0	18.0	66	569
	2N6967	70	200	±20	13	2/4	0.25	0.18	6.0	18.0	66	569
	2N6968	70	400	±20	7.5	2/4	0.25	0.55	4.0	12.0	66	569
	2N6969	70	500	±20	6.0	2/4	0.25	0.85	4.0	12.0	66	569
	2N6902	75	100	±10	12	1/2	1.0	0.20	0.3	12.0	3	566
	2N6904	75	200	±10	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
'U'	*2N7218	125	100	±20	28.0	2/4	0.25	.077			254	596
'U'	*2N7219	125	200	±20	18.0	2/4	0.25	.18			254	596
'U'	*2N7221	125	400	±20	10.0	2/4	0.25	.55			254	596
'U'	*2N7222	125	500	±20	8.0	2/4	0.25	.85			254	596
'U'	*2N7224	150	100	±20	34.0	2/4	0.25	.070			254	592
	2N6764	150	100	±20	38.0	2/4	0.25	.055	9.0	27.0	3	543
'U'	*2N7225	150	200	±20	27.0	2/4	0.25	.10			254	592
	2N6766	150	200	±20	30.0	2/4	0.25	.085	9.0	27.0	3	543
'U'	*2N7227	150	400	±20	14.0	2/4	0.25	.315			254	592
	2N6768	150	400	±20	14.0	2/4	0.25	.300	8.0	24.0	3	543
'U'	*2N7228	150	500	±20	12.0	2/4	0.25	.415			254	592
	2N6770	150	500	±20	12.0	2/4	0.25	.400	8.0	24.0	3	543
	2N6962	150	100	±20	30.0	2/4	0.25	.06	9.0	27.0	61	568
	2N6963	150	200	±20	30.0	2/4	0.25	.09	9.0	27.0	61	568
	2N6964	150	400	±20	15.0	2/4	0.25	.3	8.0	24.0	61	568
	2N6965	150	500	±20	13.0	2/4	0.25	.4	8.0	24.0	61	568

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TABLE VII. P-channel power MOSFETs.

	Device type no.	Maximum ratings				Primary electrical characteristics					Case	Spec
		P_T @ T_C =25°C W	V_{DS} V	V_{GS} V	I_D @ T_C = 25°C A	$V_{GS(th)}$ min at I_D max	mA	$r_{DS(on)}$ @ V_{GS} =10 V max Ω	g_{fs} min	max	TO-	
	2N6895	8.33	100	±20	1.16	2/4	1.0	3.65	0.2	0.8	39	565
	2N6845	20	100	±20	4.0	2/4	0.25	.6	1.25	3.75	39	563
	2N6847	20	200	±20	2.5	2/4	0.25	1.5	1.0	3.0	39	563
	2N6849	25	100	±20	6.5	2/4	0.25	.30	2.5	7.5	39	564
	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
	2N6804	75	100	±20	11.0	2/4	0.25	.30	3.0	9.0	3	562
	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
'U'	*2N7236	125	100	±20	18	2/4	0.25	.20			254	595
'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

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TABLE VIII. Quad MOSFETs.

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

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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		$V_{CE(sat)}$ @ I_C		f		
	W	A	V dc	V dc	V dc	(x 1000)	A dc	V dc	A dc	MHz		
2N6350	5	5	80	80	12	2-10	5	1.5	5	50/250	T033	472
2N6351	5	5	150	150	12	1-10	5	2.5	5	50/250	T033	472
2N6352	25	5	80	80	12	2-10	5	1.5	5	50/250	T066	472
2N6353	25	5	150	150	12	1-10	5	2.5	5	50/250	T066	472
2N6301	32	8	80	80	5	.75-18	4	2.0	4	25/350	T066	539
2N6384	100	10	60	60	5	1-20	5	2.0	5	20/300	T03	523
2N6385	100	10	80	80	5	1-20	5	2.0	5	20/300	T03	523
2N6058	150	12	80	80	5	2.5-10	6	3.0	12	20/125	T03	502
2N6059	150	12	100	100	5	2.5-18	6	3.0	12	20/125	T03	502
2N6283	175	20	80	80	7	1.25-18	10	3.0	20	8/80	T03	504
2N6284	175	20	100	100	7	1.25-18	10	3.0	20	8/80	T03	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		$V_{CE(sat)}$ @ I_C		f		
	W	A	V dc	V dc	V dc	(x 1000)	A dc	V dc	A dc	MHz		
2N6299	32	8	80	80	5	.75-18	4	2.0	4	25/350	T066	540
2N6649	85	10	60	60	5	1-20	5	2.0	5	50/400	T03	527
2N6650	85	10	80	80	5	1-20	5	2.0	5	50/400	T03	527
2N6051	150	12	80	80	5	1-10	6	3.0	12	20/125	T03	501
2N6052	150	12	100	100	5	1-10	6	3.0	12	20/125	T03	501
2N6286	175	20	80	80	7	1.25-18	10	3.0	20	8/80	T03	505
2N6287	175	20	100	100	7	1.25-18	10	3.0	20	8/80	T03	505

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TABLE XI. N channel FETS.

Device type	P_T mW	Maximum ratings				Primary electrical characteristics							Case	Spec
		V_{DG} V	V_{DS} V	V_{GS} V	I_G mA	I_{GSS} nA	$V_{GS(OFF)}$ V Min	$V_{GS(OFF)}$ V Max	t_{ON} ns	t_{OFF} ns	I_{DSS} mA Min/Max	C_{iss} pF		
2N5545	250	50		50	30							6	T071	430
2N5546	250	50		50	30							6	T071	430
2N5547	250	50		50	30							6	T071	430
2N4416A	300	30	35	35	10		2.5	6			5/15	4	T072	428
2N3821	300	50	50	50	10			4			.5/2.5	6	T072	375
2N3822	300	50	50	50	10			6			2/10	6	T072	375
2N3823	300	30	30	30	10			8			4/20	6	T072	375
2N4856	360	40	40	40	50	.25	4	10	6	25	50/---	18	T018	385
2N4857	360	40	40	40	50	.25	2	6	6	50	20/100	18	T018	385
2N4858	360	40	40	40	50	.25	.8	4	10	100	8/80	18	T018	385

TABLE XII. P-channel FETS.

Device type no.	P_T mW	Maximum ratings				Primary electrical characteristics							Case	Spec
		V_{DG} V	V_{DS} V	V_{GS} V	I_G mA	I_{GSS} nA	$V_{GS(OFF)}$ V Min	$V_{GS(OFF)}$ V Max	t_{ON} ns	t_{OFF} ns	I_{DSS} mA Min/Max	C_{iss} pF		
2N5114	500	30	30	30	50	1000	5	10	6	6	30/90	25	T018	476
2N5115	500	30	30	30	50	1000	3	6	10	8	15/60	25	T018	476
2N5116	500	30	30	30	50	1000	1	4	25	20	5/25	27	T018	476

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TABLE XIII. Power rectifiers.

	Device type no.	I_0 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} µA dc 25°C	I_R at V_{RWM} µA dc 150°C	t_{rr} ns	Spec
'U'	1N5616	1	400			1.3	3	.5	25	2000	427
'U'	1N5618	1	600			1.3	3	.5	25	2000	427
'U'	1N5620	1	800			1.3	3	.5	25	2000	427
'U'	1N5622	1	1000			1.3	3	.5	25	2000	427
'U'	1N5551	3	400			1.6	9	1	75	2000	420
'U'	1N5552	3	600			1.6	9	1	75	2000	420
'U'	1N5553	3	800			1.6	9	1	75	2000	420
'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_0 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
1N6492	4.5	45	.68	4	.56	2	TO-39	567
1N6391	22.5	45	.68	50	.48	5	DO-4	553
1N6392	54	45	.82	120	.68	60	DO-5	554

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TABLE XV. Fast recovery rectifiers

	Device type no.	I_O A dc	V_{RWM} V pk	V_F at I_F Vdc	V_F at I_F Adc	V_{FM} at I_F Vpk	V_{FM} at I_F Apk	I_R at V_{RWM} µA dc 25°C	I_R at V_{RWM} µA dc 150°C	t_{rr} ns	Spec
'U'	1N5615	1	200			1.6	3	.5	25	150	429
'U'	1N5617	1	400			1.6	3	.5	25	150	429
'U'	1N5619	1	600			1.6	3	.5	25	250	429
'U'	1N5621	1	800			1.6	3	.5	25	300	429
'U'	1N5623	1	1000			1.6	3	.5	25	300	429
'U'	1N6623	1.5	800			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
'U'	1N5804	2.5	100	.875	1	.975	2.5	1	50	25	477
'U'	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
'U'	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'	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
	1N5809	6	100	.875	4	.925	6	5	150	30	477
	1N5811	6	150	.875	4	.925	6	5	150	30	477
	1N3891	12	200			1.5	38	15	2000	200	304
	1N3893	12	400			1.5	38	15	2000	200	304
	1N5814	20	100			.86	10	10	75	35	478
	1N5816	20	150			.86	10	10	75	35	478
	1N3911	30	200			1.4	50	15	6000	15	308
	1N3913	30	400			1.4	50	15	6000	200	308
	1N6305	70	100			.975	70	25	3000	50	550
	1N6306	70	150			.975	70	25	3000	50	550

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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} µA 25°C	I_R at V_{RWM} µA 150°C	Spec
	1N5712-1	---	16	1	35		.15	100	445
'U'	1N5711	---	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'	1N6638	4.5	125	1.1	200	2	.5	100	578
'U'	1N6642	5	75	1.2	100	5	.5	100	578
	1N4148-1	5	75	5	50	4	.5	100	116
	1N4150-1	6	50	.74	10	2.5	.1	100	231
'U'	1N6643	6	50	1.2	100	5	.5	160	578
	1N4938-1	50	175	1	100	5		.1	169

NOTES: 1N5711, 5712-1 are SCHOTTKY Diodes
1N5719 is a PIN Diode
1N4148-1 shall not be used in any tactical, airborne, missile, space flight or life-support system. It may only be used in ground based non-tactical, non-life-support equipment.
1N6638, 1N66642, 1N6643 are full area, high temperature, metallurgically bonded construction which are immune by design to intermittencies caused by thermal cycling and vibration. These devices are preferred for use in tactical, airborne, missile, space flight and life-support applications.

TABLE XVII. Zener diodes.

V_Z (nom) (Vdc)	Device type no. (listed by P_T and spec number)								
	127 1/	117 1/	435 1/	533	406	356 3/	272 2/	124 2/	114 2/
Power Case	400 mW SM Axial	400 mW SM Axial	400 mW SM Axial	500 mW SM Axial	1.5 W SM Axial	5 W SM Axial	10 W DO4	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		1N3993A		1N4557B
4.3	1N749A-1		1N4623-1	1N6315	1N6488		1N3994A		1N4558B
4.7	1N750A-1		1N4624-1	1N6316	1N6489		1N3995A		1N4559B
5.1	1N751A-1		1N4625-1	1N6317	1N6490		1N3996A		1N4560B
5.6	1N752A-1		1N4626-1	1N6318	1N6491	1N5968	1N3997A		1N4561B
6.2	1N753A-1		1N4627-1	1N6319	1N4460	1N5969	1N3998A		1N4562B
6.8	1N754A-1		1N4099-1	1N6320	1N4461	1N4954	1N3999A	1N2970B	1N2804B
7.5	1N755A-1		1N4100-1	1N6321	1N4462	1N4955	1N4000A	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						

See footnotes at end of table

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TABLE XVII. Zener diodes - Continued.

V_z (nom) (Vdc)	Device type no. (listed by P_T and spec number)								
	127	117	435	533	406	356 2/	272 1/	124 1/	114 1/
Power	400 mW	400 mW	400 mW	500 mW	1.5 W	5 W	10 W	10 W	50 W
Case	SM Axial	SM Axial	SM Axial	SM Axial	SM Axial	SM Axial	DO4	DO4	TO3
Volts									
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			

1/ Reverse polarity device types available.
2/ T_2 = 75°C, L = 0.375 inch.

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TABLE XVIII. Voltage reference diodes.

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

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TABLE XIX. High voltage diodes.

	Device type no.	V_{RWM}	I_0	t_{rr}	V_F at I_0	I_R at V_{RWM}		Spec
						μA dc		
		V dc	Adc	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
	1N6529	2,000	.25	70	3.0	.1	50	577
'U'	1N6521	2,000	.5	70	3.0	1	150	576
	1N6530	2,500	.1	70	7.0	.1	50	577
'U'	1N6522	2,500	.25	70	5.0	1	150	576
	1N6531	3,000	.1	70	7.0	.1	50	577
'U'	1N6523	3,000	.25	70	5.0	1	150	576
	1N6532	4,000	.05	70	9.0	.1	50	577
'U'	1N6524	4,000	.15	70	7.0	1	150	576
	1N6533	5,000	.05	70	9.0	.1	50	577
'U'	1N6525	5,000	.15	70	7.0	1	150	576
	1N6534	7,500	.025	70	14.0	.1	50	577
'U'	1N6526	7,500	.1	70	12.0	1	150	576
	1N6535	10,000	.025	70	14.0	.1	50	577
'U'	1N6527	10,000	.1	70	12.0	1	150	576

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

MIL-S-19500/516 Series type		Breakdown voltage $V_{(BR)}$ Min 1/	Max	Working peak voltage VM(wkg) 1/	Maximum peak surge voltage V_{SM}	Maximum peak surge current I_{SM} 2/	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.

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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 µs t_r = 8 µs	t_p = 1 ms t_r = 10 µs
	V dc	V(pk)	mA dc	V(pk)	A(pk)	A(pk)
MIL-S-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
MIL-S-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

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TABLE XXI. Thyristors (SCRs).

Device type no.	I_0 at T_C		V_{RM}	I_{FSM}	t_{on}	t_{off}	V_{GT}	I_{GT}	Case	Spec
	A	°C	V	surge A	µs	µs	V dc	mA dc		
2N3027	.175	100	30		.2	2	.6	.2	TO-18	419
2N3028	.175	100	60		.2	2	.6	.2	TO-18	419
2N3029	.175	100	100		.2	2	.6	.2	TO-18	419
2N2323A	.22	80	75	15			1	.35	TO-5	276
2N2324A	.22	80	150	15			1	.35	TO-5	276
2N2326A	.22	80	300	15			1	.35	TO-5	276
2N2328A	.22	80	400	15			1	.35	TO-5	276
2N2329	.22	80	500	15			1	.35	TO-5	276
2N1774A	4.7	105	200	60	5	30	2	30	TO-64	168
2N1777A	4.7	105	400	60	5	30	2	30	TO-64	168
2N685	16	65	200	150	5	30	3	80	TO-208MA	108
2N688	16	65	400	150	5	30	3	80	TO-208MA	108
2N690	16	65	600	150	5	40	3	80	TO-208MA	108
2N692	16	65	800	150	5	60	3	80	TO-208MA	108
2N1795	50	80	200	1000	15	40	3	70	Stud	204
2N1913	50	80	200	1000	15	40	3	70	Stud	204
2N1798	50	80	400	1000	15	40	3	70	Stud	204
2N1916	50	80	400	1000	15	40	3	70	Stud	204
2N1800	50	80	600	1000	15	40	3	70	Stud	204
2N1806	50	80	600	1000	15	40	3	70	Stud	204
2N3093	50	93	800	1000	15	47	3	70	Stud	280
2N3095	50	93	1000	1000	15	47	3	70	Stud	280
2N3097	50	93	1200	1000	15	47	3	70	Stud	280

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TABLE XXII. Current regulator diodes.

Device type	I_p mA	Z_T M Ω	Z_K K Ω	V_r V	T_{CIP} @ -55°C %/C°		T_{CIP} @ 25°C %/C°		Case SM	Spec
1N5283	.22	25	2750	1		+1.35	-.006	+.70	DO-7	463
1N5284	.24	19	2350	1		+1.25	-.11	+.66	DO-7	463
1N5285	.27	14	1950	1	-.10	+1.15	-.12	+.58	DO-7	463
1N5286	.30	9	1600	1	-.15	+1.05	-.15	+.52	DO-7	463
1N5287	.33	6.6	1350	1	-.20	+ .95	-.16	+.47	DO-7	463
1N5288	.39	4.1	1000	1.05	-.30	+ .82	-.20	+.38	DO-7	463
1N5289	.43	3.3	870	1.05	-.32	+ .75	-.22	+.33	DO-7	463
1N5290	.47	2.7	750	1.05	-.35	+ .70	-.23	+.28	DO-7	463
1N5291	.56	1.9	560	1.10	-.40	+ .55	-.26	+.20	DO-7	463
1N5292	.62	1.55	470	1.13	-.42	+ .45	-.27	+.15	DO-7	463
1N5293	.68	1.35	400	1.15	-.45	+ .40	-.28	+.12	DO-7	463
1N5294	.75	1.15	335	1.20	-.50	+ .35	-.30	+.07	DO-7	463
1N5295	.82	1.00	290	1.25	-.52	+ .27	-.31	+.03	DO-7	463
1N5296	.91	.88	240	1.29	-.56	+ .20	-.32		DO-7	463
1N5297	1.00	.80	205	1.35	-.58	+ .15	-.34		DO-7	463
1N5298	1.10	.70	180	1.40	-.60	+ .10	-.36		DO-7	463
1N5299	1.20	.64	155	1.45	-.63	+ .05	-.37		DO-7	463
1N5300	1.30	.58	135	1.50	-.65		-.38		DO-7	463
1N5301	1.40	.54	115	1.55	-.68		-.39		DO-7	463
1N5302	1.50	.51	105	1.60	-.70		-.40		DO-7	463
1N5303	1.60	.475	92	1.65	-.70		-.40		DO-7	463
1N5304	1.80	.42	74	1.75	-.72		-.41		DO-7	463
1N5305	2.00	.395	61	1.85	-.75		-.42		DO-7	463
1N5306	2.20	.37	52	1.95	-.76		-.42		DO-7	463
1N5307	2.40	.345	44	2.00	-.78		-.43		DO-7	463
1N5308	2.7	.32	35	2.15	-.80		-.43		DO-7	463
1N5309	3.0	.30	29	2.25	-.81		-.43		DO-7	463
1N5310	3.3	.28	24	2.35	-.82		-.44		DO-7	463
1N5311	3.6	.265	20	2.5	-.83		-.44		DO-7	463
1N5312	3.9	.255	17	2.6	-.84		-.45		DO-7	463
1N5313	4.3	.245	14	2.75	-.85		-.45		DO-7	463
1N5314	4.7	.236	12	2.9	-.86		-.45		DO-7	463

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TABLE XXIII. Voltage-variable-capacitance diodes.

Device type	C_T @ 4Vdc pF	Capacitance ratio max	V_{R1} to V_{R2} V dc	V_{R2} V dc	V_{RWM} V dc	Conditions freq MHz	Conditions V_R Vdc	Q	Case	Spec
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

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TABLE XXIV. Full wave bridge rectifiers.

Phase	Device type no.	I_0 A	I_{FSM} A	I_r at V_r		Spec
				µA	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

Package outlines for these Bridge Rectifiers are shown in their respective detail specifications.

TABLE XXV. Multiple diode arrays.

Device type no.	I_0 mA	V_F at I_F		I_R at V_R		t_{rr} ns	C_T pF	Case	Spec
		V	mA	µA	V				
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	DIP	474
1N6507	300	1.5	500	.1	40	20	8	DIP	474
1N6508	300	1.5	500	.1	40	20	8	DIP	474
1N6509	300	1.5	500	.1	40	20	8	DIP	474
1N6100	300	1.0	100	.025	20	5	4	FLAT	474
1N6101	300	1.0	100	.025	20	5	4	DIP	474
1N6510	300	1.0	100	.025	20	5	4	FLAT	474
1N6511	300	1.0	100	.025	20	5	4	DIP	474

Pinouts and case outlines for these Multiple Diode Arrays are shown in the detail specification.

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TABLE XXVI. Light emitting diodes.

Device type	Color	Iv mcd		C pF	V_F Vdc	wavelength nm		Spec
		Min	Max			Min	Max	
These devices are in TO-18 packages and are also available in panel mount configurations:								
1N6609	Red	20	---	100	3	590	695	519
1N6610	Yellow	20	---	100	3	550	660	520
1N6611	Green	20	---	100	3	525	600	521
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 Vdc with no external current limiting resistor.

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TABLE XXVII. 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 mAdc	V_{CB} Vdc	V_{CE} Vdc	V_{BE} Vdc	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	T077	336
	2N3811	500/600	50	60	60	5	300-900	1.0	5	2.5	100-500	T077	336
'U'	2N5796	500/600	600	60	60	5	100-300	150	8				496

TABLE XXVIII. 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 mAdc	V_{CB} Vdc	V_{CE} Vdc	V_{BE} Vdc	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	T077	355
'U'	2N5794	500/600	600	75	40	6	100-300	150	8				495
	2N2060	540/600	500	100	60	7	40-120	1.0	15	8.0	60-500	T077	270

TABLE XXXIX. Silicon 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} @ I_C	mA	$V_{CE(sat)}$	@ 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.

Device type no.	LED section				Photo transistor					Total device			Case	Spec
	I_F mA	I_P mA	V_F @ I_F V	mA	V_{CEO} V	V_{CBO} V	V_{EBO} V	V_{CE} @ I_C (SAT) V	mA	I_{CEX} I_F= 10mA	I_F= 2 mA	t_r & t_f µs	SM	
4N47	40	1	1.5	10	40	45	7	.3	2.0	30	.5	20	TO-99	548
4N48	40	1	1.5	10	40	45	7	.3	2.0	30	1.0	20	TO-99	548
4N49	40	1	1.5	10	40	45	7	.3	2.0	30	2.0	25	TO-99	548

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