

SYMBOLS & CODES EXPLAINED

6. "P" Channel

7. "N" Channel — SILICON FIELD EFFECT TRANSISTORS

LINE No.	TYPE No.	1 MAX. DEVICE DISS @ 25°C (W)	2 MAX. V_p (V)	3 MAX. V_{DS} (V)	4 ABS. MAX. RATINGS @ 25°C $V_{GS} = 0$ (V)	5 MAX. V_{DS} (V)	6 MAX. I_D (A)	7 MAX. I_G (A)	8 MAX. I_{DSS} @ $V_{GS} = 0$ (A)	9 MAX. I_{GSS} @ $V_{GS} > V_p$ (A)	10 TEST COND. V_{GS} (V)	11 TEST COND. V_{DS} (V)	12 COMMON SOURCE g_{fs} (mhos)	13 COMMON SOURCE V_{OS} (V)	14 R_{DS} (Ω)	15 MAX. C_{IS} (F)	16 DERATE IN FREE AIR W/C	17 MAX. TEMP (°C)	18 STRUCTURE	19 DWG. #	20 Y200 E O A D E
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▼ — Matched Type, also listed in Section 13, Category 6
 ◆ — Phototransistor, also listed in Section 13, Category 7 (See Above Also)

△ — With infinite heat sink
 † — Above 25°C; For additional information, consult manufacturer.

† — V_{GS} (Cut Off)
 △ — V_{GST} (Threshold)
 % — Typical
 # — Minimum

△ — Depletion Mode, Type A
 \$ — Depletion-Enhancement Mode, Type B
 * — Enhancement Mode, Type C

△ — BV_{DSO}
 † — BV_{DSX}

△ — BV_{DGO}

△ — Typical § — g_{fg}
 † — Pulsed
 % — High Frequency (V_{fs})
 □ — V_{FS}

△ — V_{is} § — V_{og}
 † — Not at given test conditions
 % — Maximum
 * — Pulsed

△ — V_{GD}
 † — V_{DG}

% — Maximum
 △ — Not given at test conditions
 † — $R_{DS(on)}$ at $V_{DS} = 0$

□ — I_D in mA

△ — I_{DGO}

△ — I_{DSS} @ $V_{GS} = 0$ and $V_{DS} \approx V_p$
 □ — $V_{GS} > 0$
 # — Minimum
 * — Typical
 % — Pulsed

— C_{iss} (Output Shorted)
 △ — C_{dgs}
 † — C_{gss}
 % — Not given at test conditions
 * — Typical
 □ — C_{dss}
 □ — C_{dgo} § — C_{igs}

STRUCTURE
 D — Diffused
 E — Epitaxial
 Ge — GermaniumPE
 PE — Planar Epitaxial
 PL — Planar
 # — Junction Type
 * — Insulated Gate (MOS Type)
 △ — Matched pair or dual
 % — Switching, other uses
 □ — Chopper, Other uses
 † — Noise figure 8db or below
 H — Plastic Package
 \$ — Hometaxial
 % — Tetraode
 % — Insulated Gate (MNOS Type)

A—Ambient J—Junction
 C—Case S—Storage

□ — Phototransistor Device
 △ — Tetraode Device
 % — Composite Type

8. GERMANIUM PNP

9. GERMANIUM NPN

10. SILICON PNP

11. SILICON NPN — High Power Transistors

LINE No.	TYPE No.	1 MIN. DERATE J to C W/C	2 MAX. FREE AIR @ 25°C (W)	3 MAX. P_{CM} (W)	4 ABS. MAX. RATINGS @ 25°C $V_{CE} = 0$ (A)	5 MAX. I_C (A)	6 MAX. I_B (A)	7 MAX. BV_{CBO} (V)	8 MAX. BV_{EBO} (V)	9 MAX. BV_{CEO} (V)	10 MAX. I_{CBO} @ 25°C (A)	11 MAX. I_{CBO} @ 25°C (A)	12 BIAS V_{CB} (V)	13 MIN. I_C (A)	14 MAX. f_{ae} (Hz)	15 MAX. SAT. RES. (Ω)	16 tr (s)	17 STRUCTURE	18 DWG. #	19 Y200 E O A D E
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† — 40°C
 * — 45°C
 # — 50°C
 □ — 60°C
 § — 75°C
 Symbols indicate temperature at which derating starts.

□ — With infinite heat sink
 Following symbols indicate temp at which derating starts:
 † — 40°C
 * — 45°C
 # — 50°C
 □ — 60°C
 § — 70°C
 \$ — 100°C
 % — Min.

* — 50-65°C
 □ — 70-80°C
 # — 85-100°C
 § — 110-125°C
 † — 130-135°C
 \$ — 140-165°C
 % — 170-200°C
 ▼ — Over 200°C

□ — I_E § — Minimum
 # — Pulsed or Peak
 † — At temperature 25°C Case

□ — At $V_{CB} < \text{Max. } V_{CB}$ (see mfr. spec.)
 # — I_{CEX}
 § — I_{CES}
 \$ — Typical
 * — I_{cer}
 † — At Temp. 25°C Case
 △ — I_{CEO}

— BV_{CEX} or punch-through
 □ — BV_{CES}
 § — BV_{CER}
 * — Pulsed
 □ — $BV_{ceo(SUS)}$
 \$ — Minimum

† — At Temp. 25°C Case
 \$ — Minimum

□ — I_E
 # — Pulsed
 \$ — Minimum

† — h_{fe}
 # — Pulsed
 □ — Typical
 * — Available to selected range narrower than indicated

□ — Maximum
 □ — $t_d + t_r = T_{on}$
 § — t_s
 # — t_f
 † — $t_s + t_f = T_{off}$
 * — $T_{on} + T_{off}$

▼ — Typical Value # — Pulsed

— Rated max. operating frequency
 † — f_{α_b}
 § — Gain bandwidth product (f_T)
 * — Maximum frequency of oscillation
 □ — Figure of merit (frequency for unity power gain)
 △ — Minimum □ — Maximum

\$ — Tetraode
 # — Radiation Resistant Device (Also see top of reverse side of card.)

11. SILICON NPN - HIGH POWER TRANSISTORS

IN ORDER OF (1) MIN. DERATING FACTOR
& (2) TYPE No.

LINE No.	2	TYPE No.	1 MIN. DERATE J to C (W/°C)	MAX FREE AIR @ 25°C (W)	Pc	M T A E X M P	ABSOLUTE MAX. RATINGS @25°C					MAX. MAX Vcb/Vcbs		BIAS hFE		f _{ae} (Hz)	MAX. SAT. RES. (Ω)	tr (s)	STRUC-TURE	DWG #1 Y200 s/a TO200 Ser.	C O A D E
							Ic	Ib	V _{ce} bo	V _{be} bo	V _{ceo}	Icbo	MAX Vcb/Vcbs	MIN	MAX						
1		B170002	666m	120	0	5J	15	7.0	50	5.0	40	30m#	4.00	500m	20	120 *	15k	300m	DM	T03	C0
2		B170003	666m	60	0	5J	6.0	3.0	80	5.0	70	30m#	4.00	500m	20	120 *	15k	400m	DM	T03	C0
3		B170004	666m	90	0	5J	10	5.0	80	5.0	70	30m#	4.00	500m	20	120 *	15k	270m	DM	T03	C0
4		B170005	666m	120	0	5J	15	7.0	80	5.0	70	30m#	4.00	500m	20	120 *	15k	300m	DM	T03	C0
5		B170006	666m	60	0	5J	6.0	3.0	100	5.0	100	30m#	4.00	500m	20	120 *	15k	400m	DM	T03	C0
6		B170007	666m	90	0	5J	10	5.0	100	5.0	100	30m#	4.00	500m	20	120 *	15k	270m	DM	T03	C0
7		B170008	666m	120	0	5J	15	7.0	100	5.0	100	30m#	4.00	500m	20	120 *	15k	300m	DM	T03	C0
8		B170009	666m	60	0	5J	6.0	3.0	50	2.0	40	30m#	4.00	1.0	30			400m	DM	T03	C0
9		B170010	666m	90	0	5J	10	5.0	50	2.0	40	30m#	4.00	3.0	20			270m	DM	T03	C0
10		B170011	666m	120	0	5J	15	7.0	50	2.0	40	30m#	4.00	5.0	12			300m	DM	T03	C0
11		B170012	666m	60	0	5J	6.0	3.0	80	2.0	70	30m#	4.00	1.0	30			400m	DM	T03	C0
12		B170013	666m	90	0	5J	10	5.0	80	2.0	70	30m#	4.00	3.0	20			270m	DM	T03	C0
13		B170014	666m	120	0	5J	15	7.0	80	2.0	70	30m#	4.00	5.0	12			300m	DM	T03	C0
14		B170015	666m	60	0	5J	6.0	3.0	100	2.0	100	30m#	4.00	1.0	30			400m	DM	T03	C0
15		B170016	666m	90	0	5J	10	5.0	100	2.0	100	30m#	4.00	3.0	20			270m	DM	T03	C0
16		B170017	666m	120	0	5J	15	7.0	100	2.0	100	30m#	4.00	5.0	12			300m	DM	T03	C0
17		B170018†	666m	60	0	5J	6.0	3.0	50	5.0	40	30m#	4.00	1.0	30			400m	4.0u DM	T03	C0
18		B170019†	666m	90	0	5J	10	5.0	50	5.0	40	30m#	4.00	3.0	20			270m	6.0u DM	T03	C0
19		B170020†	666m	120	0	5J	15	7.0	50	5.0	40	30m#	4.00	5.0	12			300m	8.0u DM	T03	C0
20		B170021†	666m	60	0	5J	6.0	3.0	80	5.0	70	30m#	4.00	1.0	30			400m	4.0u DM	T03	C0
21		B170022†	666m	90	0	5J	10	5.0	80	5.0	70	30m#	4.00	3.0	20			270m	6.0u DM	T03	C0
22		B170023†	666m	120	0	5J	15	7.0	80	5.0	70	30m#	4.00	5.0	12			300m	8.0u DM	T03	C0
23		B170024†	666m	60	0	5J	6.0	3.0	100	5.0	100	30m#	4.00	1.0	30			400m	4.0u DM	T03	C0
24		B170025†	666m	90	0	5J	10	5.0	100	5.0	100	30m#	4.00	3.0	20			270m	6.0u DM	T03	C0
25		B170026†	666m	120	0	5J	15	7.0	100	5.0	100	30m#	4.00	5.0	12			300m	8.0u DM	T03	C0
26		B176000	666m	50	0	5J	5.0	2.5	250	5.0	250 #	2.0u	5.00	100m	25				T03	C0	
27		B176001	666m	50	0	5J	5.0	2.5	250	5.0	250 #	2.0u	5.00	500m	20				T03	C0	
28		B176002	666m	50	0	5J	5.0	2.5	250	5.0	250 #	2.0u	5.00	1.5	10				T03	C0	
29		B176003	666m	50	0	5J	5.0	2.5	250	5.0	250 #	2.0u	5.00	2.5	10				T03	C0	
30		B176004	666m	50	0	5J	5.0	2.5	400	5.0	400 #	2.0u	5.00	100m	25				T03	C0	
31		B176005	666m	50	0	5J	5.0	2.5	400	5.0	400 #	2.0u	5.00	500m	20				T03	C0	
32		B176006	666m	50	0	5J	5.0	2.5	400	5.0	400 #	2.0u	5.00	1.5	10				T03	C0	
33		B176007	666m	50	0	5J	5.0	2.5	400	5.0	400 #	2.0u	5.00	2.5	10				T03	C0	
34		B176008	666m	50	0	5J	5.0	2.5	550	5.0	550 #	2.0u	5.00	100m	25				T03	C0	
35		B176009	666m	50	0	5J	5.0	2.5	550	5.0	550 #	2.0u	5.00	500m	20				T03	C0	
36		B176010	666m	50	0	5J	5.0	2.5	550	5.0	550 #	2.0u	5.00	1.5	10				T03	C0	
37		B176011	666m	50	0	5J	5.0	2.5	550	5.0	550 #	2.0u	5.00	2.5	10				T03	C0	
38		B176012	666m	50	0	5J	5.0	2.5	650	5.0	650 #	2.0u	5.00	100m	25				T03	C0	
39		B176013	666m	50	0	5J	5.0	2.5	650	5.0	650 #	2.0u	5.00	500m	20				T03	C0	
40		B176014	666m	50	0	5J	5.0	2.5	650	5.0	650 #	2.0u	5.00	1.5	10				T03	C0	
41		B176015	666m	50	0	5J	5.0	2.5	650	5.0	650 #	2.0u	5.00	2.5	10				T03	C0	
42		B176024	666m	50	0	5J	5.0	2.5	400	5.0	400 #	2.0u	5.00	1.5	10				T03	C0	
43		B176025	666m	50	0	5J	5.0	2.5	400	5.0	400 #	2.0u	5.00	2.5	10				T03	C0	
44		B176026	666m	50	0	5J	5.0	2.5	550	5.0	550 #	2.0u	5.00	1.5	10				T03	C0	
45		B176027	666m	50	0	5J	5.0	2.5	550	5.0	550 #	2.0u	5.00	2.5	10				T03	C0	
46		B176028	666m	50	0	5J	5.0	2.5	650	5.0	650 #	2.0u	5.00	1.5	10				T03	C0	
47		B176029	666m	50	0	5J	5.0	2.5	650	5.0	650 #	2.0u	5.00	2.5	10				T03	C0	
48 #		BUY72	666m	100	#	5J	10		80	6.0	60	10u#	5.00	1.0	20 #	45	30MΔ	170m	DPE	TO61	A
49 #		BUY12	666m	50	0	5J	10	2.0	210	5.0	80	200uΔ	1.70	8.0	10	21	11M	500n	ME	TO41	
49 #		BUY13	666m	50	0	5J	8.0	2.0	120	5.0	70	200uΔ	1.70	6.0	11	25	11M	500n	ME	TO41	
50 #		DT5721	666m	50	0	5J	3.0	1.0	5.0	1.0k		250uΔ	5.00	150m	20	60	1.5MΔ		D	Y204a	C0
52		MHT7201	666m	50	0	5J	10		225	8.0	200	1.0uΔ	5.00	5.0	20	60 #	50MΔ		PL	T03	A
53		MHT7202	666m	50	0	5J	10		250	8.0	225	1.0uΔ	5.00	5.0	20	60 #	50MΔ		PL	T03	A
54		MHT7203	666m	50	0	5J	10		275	8.0	250	1.0uΔ	5.00	5.0	20	60 #	50MΔ		PL	T03	A
55		MHT7204	666m	50	0	5J	10		325	8.0	300	1.0uΔ	5.00	5.0	20	60 #	50MΔ		PL	T03	A
56		MHT7205	666m	50	0	5J	10		350	8.0	325	1.0uΔ	5.00	5.0	20	60 #	50MΔ		PL	T03	A
57		MHT7601	666m	60	0	5J	10	5.0	60	8.0	40	500n	5.00	5.0	40	120 #	60M	100m	PE	T03	C0
58		MHT7602	666m	60	0	5J	10	5.0	80	8.0	60	500n	5.00	5.0	40	120 #	60M	100m	PE	T03	C0</