DIGITRON™ Semiconductors

High-reliability discrete products
and engineering services since 1977

MJ16006, MJ16008

NPN POWER TRANSISTORS

FEATURES

- Available as "HR" (high reliability) screened per MIL-PRF-19500, JANTX level. Add "HR" suffix to base part number.
- Available as non-RoHS (Sn/Pb plating), standard, and as RoHS by adding "-PBF" suffix.

MAXIMUM RATINGS

Characteristic	Symbol	MJ16006	MJ16008	Unit
Collector-Emitter Voltage	V_{CEO}	450	450	V
Collector-Emitter Voltage	V_{CEV}	850	850	V
Emitter-Base Voltage	V_{EBO}	6.0		V
Collector Current – continuous **Peak**	I_C I_{CM}	8.0 15		A
Base Current -continuous **Peak**	I_B I_{BM}	6.0 12		A
Total Power Dissipation @ T_C = 25°C **@ T_C = 100°C** **Derate Above 25°C**	P_D	150 85.5 0.860		W W W/°C
Operating and Storage Temperature Range	T_J, T_{stg}	-65 to +200		°C
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.17		°C/W

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise specified)

Characteristic			Symbol	Min	Max	Unit
Collector-Emitter Sustaining Voltage[1] (I_C = 100mA, I_B = 0)			$V_{CEO(sus)}$	450	-	V
Collector Cutoff Current (V_{CE} = 850V, $V_{BE(off)}$ = 1.5V) (V_{CE} = 850V, $V_{BE(off)}$ = 1.5V, T_C = 150°C)			I_{CEV}	- -	0.25 1.5	mA
Collector Cutoff Current (V_{CE} = 850V, R_{BE} = 50Ω, T_C = 100°C)			I_{CER}	-	2.5	mA
Emitter Cutoff Current (V_{EB} = 6.0V, I_C = 0)			I_{EBO}	-	1.0	mA
DC Current Gain (I_C = 8.0A, V_{CE} = 5.0V)		MJ16006 MJ16008	h_{FE}	5.0 7.0	- -	-
Collector-Emitter Saturation Voltage (I_C = 3.0A, I_B = 0.4A) (I_C = 5.0A, I_B = 0.66A) (I_C = 3.0A, I_B = 0.3A) (I_C = 5.0A, I_B = 0.5A)		 MJ16006 MJ16006 MJ16008 MJ16008	$V_{CE(sat)}$	 - - - -	 2.5 3.0 2.5 3.0	V
Base-Emitter Saturation Voltage (I_C = 5.0A, I_B = 0.66A) (I_C = 5.0A, I_B = 0.5A)		 MJ15006 MJ15008	$V_{BE(sat)}$	 - -	 1.5 1.5	V
Output Capacitance (V_{CB} = 10V, I_E = 0, f_{test} = 1.0kHz)			C_{ob}	-	350	pF
Delay Time	V_{CC} = 250V, I_C = 5A, R_{BE} = 4.0Ω, P_W = 30µs, duty cycle ≤ 2.0%	I_{B1} = I_{B2} = 0.66A MJ16006	t_d	-	100	ns
Rise Time			t_r	-	250	
Storage Time		I_{B1} = I_{B2} = 0.5A MJ16008	t_s	-	2500	
Fall Time			t_f	-	300	

Note 1: Pulse test: Pulse width ≤ 300µs. Duty cycle ≤ 2%.

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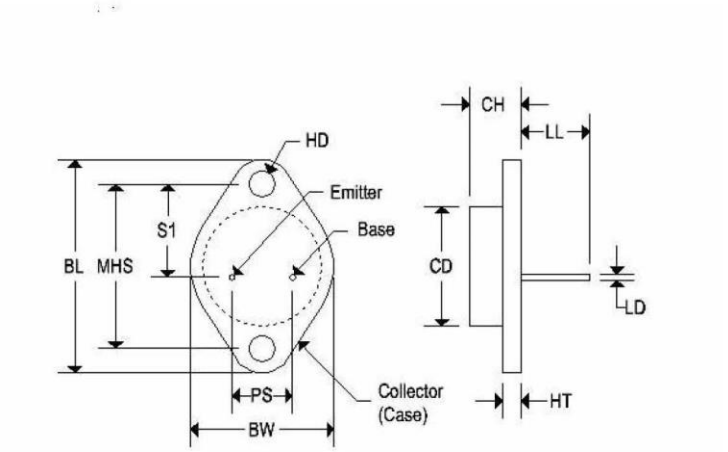
MECHANICAL CHARACTERISTICS

Case:	TO-3
Marking:	Alpha-Numeric
Polarity:	See below



	TO-3			
	Inches		Millimeters	
	Min	Max	Min	Max
CD	-	0.875	-	22.220
CH	0.250	0.380	6.860	9.650
HT	0.060	0.135	1.520	3.430
BW	-	1.050	-	26.670
HD	0.131	0.188	3.330	4.780
LD	0.038	0.043	0.970	1.090
LL	0.312	0.500	7.920	12.700
BL	1.550 REF		39.370 REF	
MHS	1.177	1.197	29.900	30.400
PS	0.420	0.440	10.670	11.180
S1	0.655	0.675	16.640	17.150

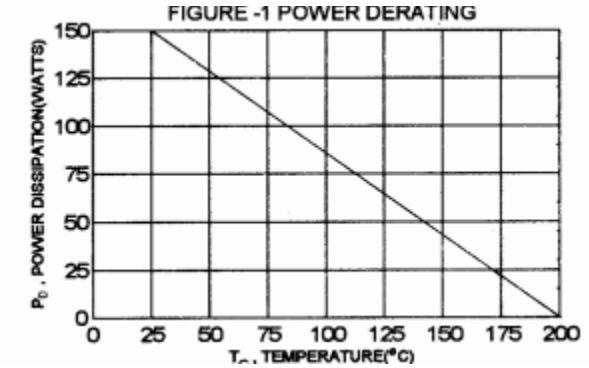


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FIG -2 DC CURRENT GAIN

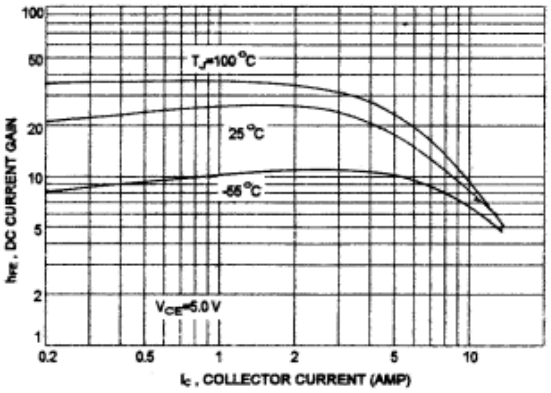

FIG-3 COLLECTOR SATURATION REGION

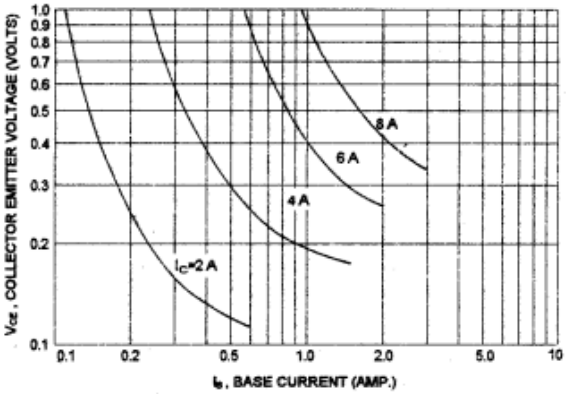

FIG-4COLLECTOR EMITTER SATURATION VOLTAGE

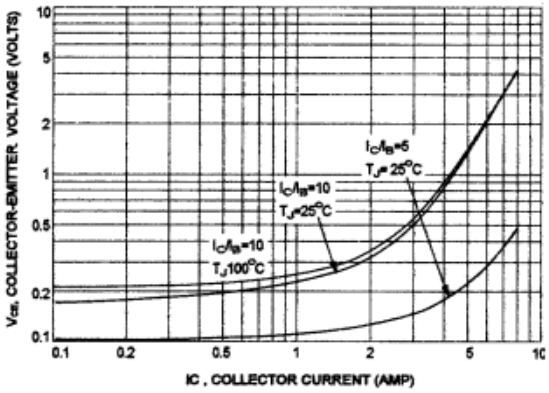

FIG-5 BASE- EMITTER SATURATION VOLTAGE

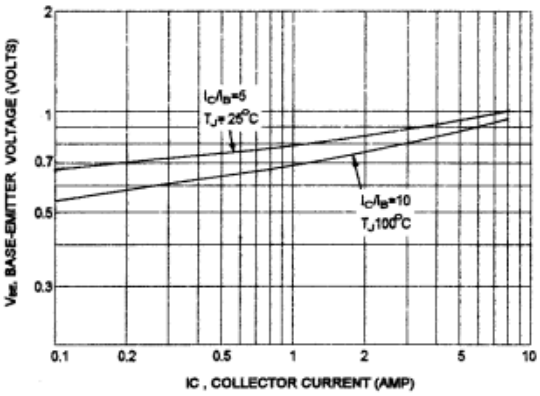

FIG-6 COLLECTOR CUT-OFF REGION

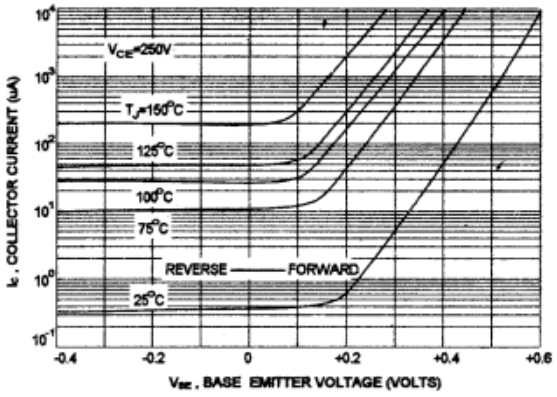

FIG-7 CAPACITANCES

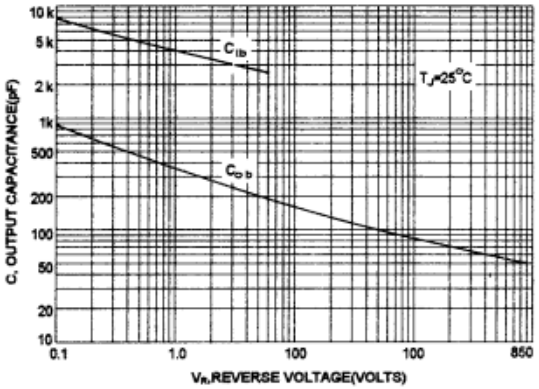

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FIG-8 FORWARD BIAS SAFE OPERATING AREA

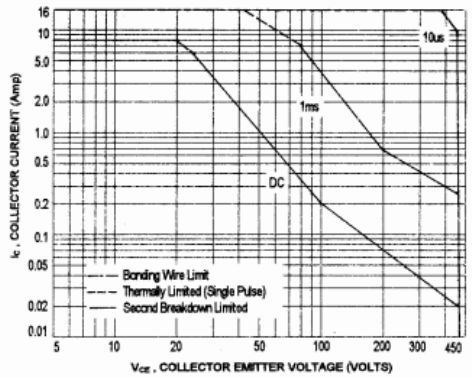

FIG-9 REVERSE BIAS SAFE OPERATING AREA