DIGITRON Semiconductors

High-reliability discrete products
and engineering services since 1977

MJ16002, MJ16004

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	MJ16002	MJ16004	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}	5.0 10		A
Base Current -continuous **Peak**	I_B I_{BM}	4.0 6.0		A
Total Power Dissipation @ T_C = 25°C **@ T_C = 100°C** **Derate Above 25°C**	P_D	125 71.5 0.714		W W W/°C
Operating and Storage Temperature Range	T_J, T_{stg}	-65 to +200		°C
Thermal Resistance, Junction to Case	$R_{\theta JC}$	1.4		°C/W
Maximum Lead Temperature for Soldering: **1/16" from case for ≤ 10s**	T_L	265		°C

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 = 5.0A, V_{CE} = 5.0V)		MJ16002 MJ16004	h_{FE}	5.0 7.0	- -	-
Collector-Emitter Saturation Voltage (I_C = 1.5A, I_B = 0.2A) (I_C = 1.5A, I_B = 0.15A) (I_C = 3.0A, I_B = 0.4A) (I_C = 3.0A, I_B = 0.3A)		 MJ16002 MJ16004 MJ16002 MJ16004	$V_{CE(sat)}$	 - - - -	 1.0 1.0 2.5 2.5	V
Base-Emitter Saturation Voltage (I_C = 3.0A, I_B = 0.4A) (I_C = 3.0A, I_B = 0.3A)			$V_{BE(sat)}$	- -	1.5 1.5	V
Output Capacitance (V_{CB} = 10V, I_E = 0, f_{test} = 1.0kHz)			C_{ob}	-	250	pF
Delay Time	V_{CC} = 250V, I_C = 3A, R_{BE} = 8.0Ω, P_W = 30µs, duty cycle ≤ 2.0%	I_{B1} = I_{B2} = 0.8A MJ16002	t_d	-	100	ns
Rise Time			t_r	-	300	
Storage Time		I_{B1} = I_{B2} = 0.6A MJ16004	t_s	-	3000	
Fall Time			t_f	-	350	

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

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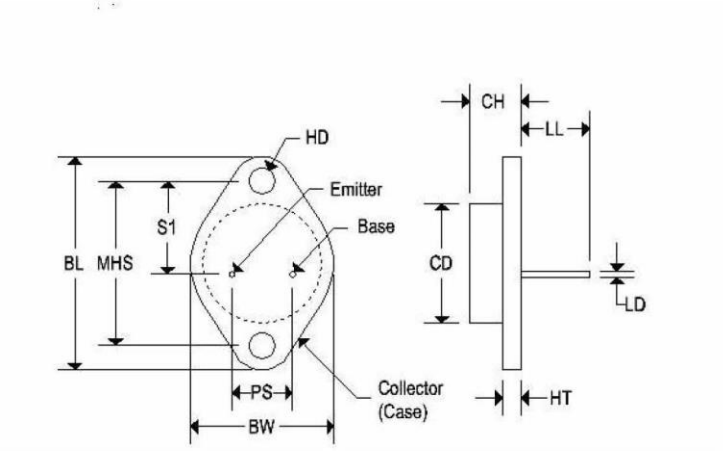
MECHANICAL CHARACTERISTICS

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

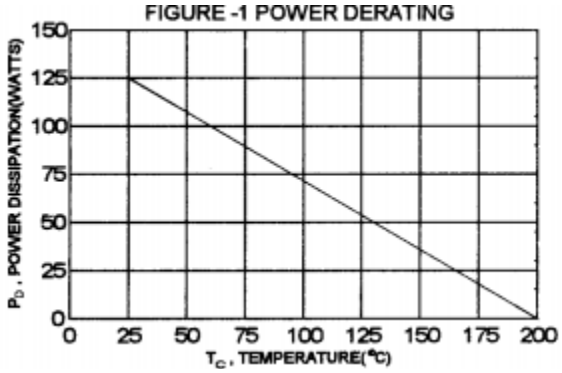


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FIG -2 DC CURRENT GAIN

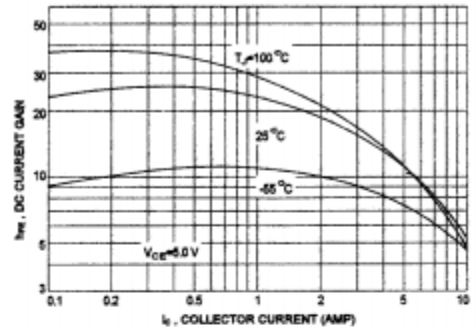


FIG-3 COLLECTOR SATURATION REGION

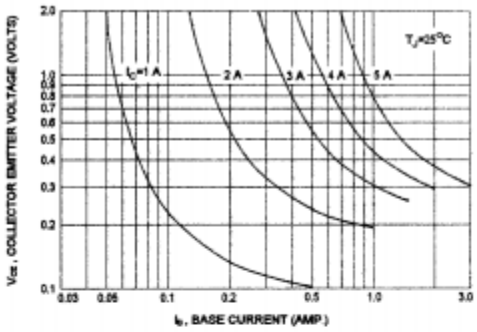


FIG-4COLLECTOR EMITTER SATURATION VOLTAGE

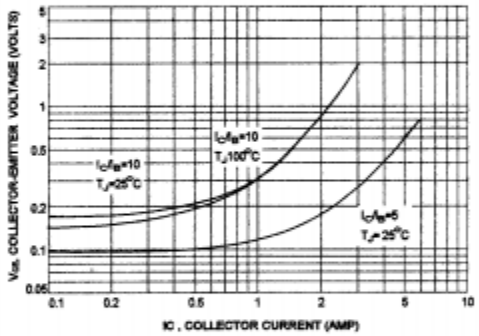


FIG-5 BASE- EMITTER SATURATION VOLTAGE

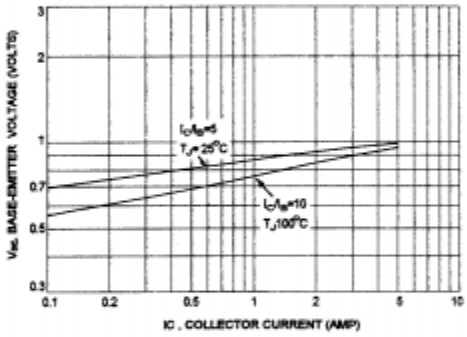


FIG-6 COLLECTOR CUT-OFF REGION

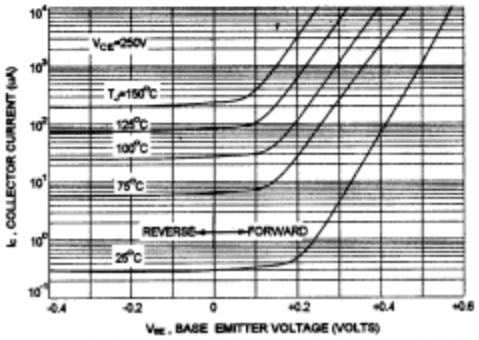
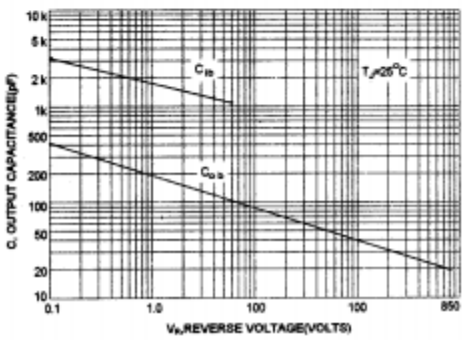


FIG-7 CAPACITANCES



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