DIGITRON™ Semiconductors

High-reliability discrete products
and engineering services since 1977

MJE3055

NPN SILICON POWER TRANSISTOR

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	MJE3055	Unit
Collector-emitter voltage	V_{CEO}	60	V
Collector-base voltage	V_{CBO}	70	V
Emitter-base voltage	V_{EBO}	5	V
Collector-current - continuous	I_C	10	A
Base-current – continuous	I_B	6.0	A
Total device dissipation **Derate above 25°C**	P_D	90 0.718	W W/°C
Operating and storage junction temperature range	T_J, T_{stg}	-55 to +150	°C
Thermal resistance, junction to case	$R_{\Theta JC}$	1.39	°C/W

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

Characteristics	Symbol	Min	Max	Unit
ON CHARACTERISTICS				
Collector-emitter sustaining voltage [1] I_C = 200mA, I_B = 0	$V_{CEO(sus)}$	60	-	V
Collector cutoff current V_{CE} = 30V, I_B = 0	I_{CBO}	-	700	µA
Collector cutoff current V_{CE} = 70V, $V_{EB(off)}$ = 1.5V V_{CE} = 70V, $V_{EB(off)}$ = 1.5V, T_C = 150°C	I_{CEX}	- -	1.0 5.0	mA
Collector cutoff current V_{CE} = 70V, I_E = 0 V_{CE} = 70V, I_E = 0, T_C = 150°C	I_{CBO}	- -	1.0 10	mA
Emitter cutoff current V_{EB} = 5V, I_C = 0	I_{EBO}	-	5.0	mA
OFF CHARACTERISTICS				
DC current gain [1] I_C = 4A, V_{CE} = 4V I_C = 10A, V_{CE} = 4V	h_{FE}	20 5.0	70 -	-
Collector-emitter saturation voltage [1] I_C = 4A, I_B = 0.4A I_C = 10A, I_B = 3.3A	$V_{CE(sat)}$	- -	1.1 8.0	V
DYNAMIC CHARACTERISTCS				
Current gain bandwidth product I_C = 500mA, V_{CE} = 10V, f = 500kHz	f_T	2.0	-	MHz

Note 1: Pulse test: $t_p \leq$ 300µs, duty cycle ≤ 2.0%.

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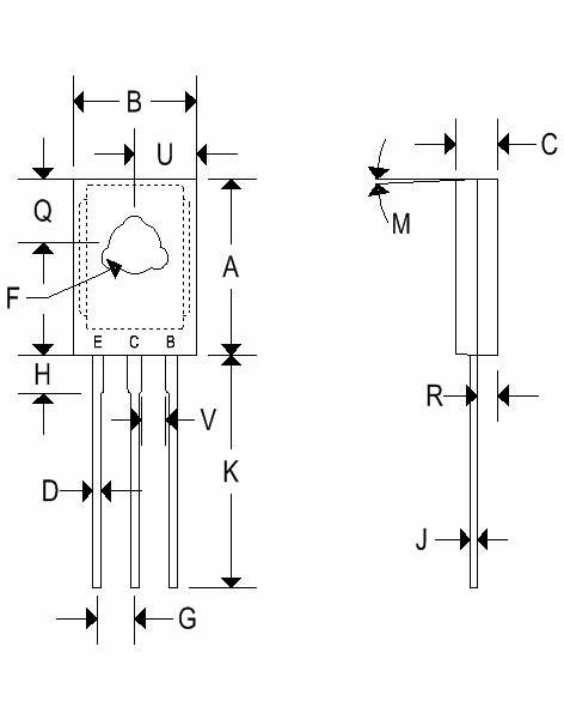
MECHANICAL CHARACTERISTICS

Case	TO-127 (ECB)
Marking	Alpha-numeric
Pin out	See below



	TO-127 (ECB)			
	Inches		Millimeters	
	Min	Max	Min	Max
A	0.635	0.645	16.130	16.380
B	0.495	0.505	12.570	12.830
C	0.125	0.135	3.180	3.430
D	0.043	0.049	1.090	1.240
F	0.138	0.148	3.510	3.760
G	0.166 BSC		4.220 BSC	
H	0.105	0.115	2.670	2.920
J	0.032	0.034	0.813	0.864
K	0.595	0.645	15.110	16.380
M	9° TYP		9° TYP	
Q	0.185	0.195	4.700	4.950
R	0.075	0.085	1.910	2.160
U	0.245	0.255	6.220	6.480
V	0.080	-	2.030	-

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FIGURE 1 – ACTIVE-REGION SAFE OPERATING AREA

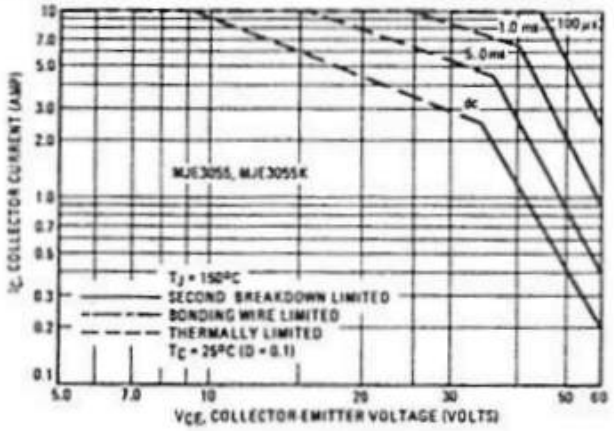

FIGURE 2 – DC CURRENT GAIN

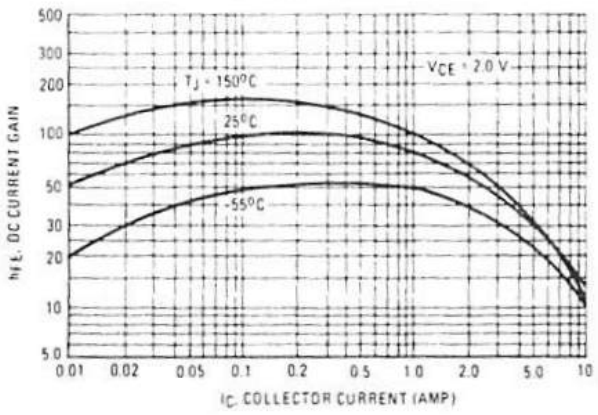

FIGURE 3 – "ON" VOLTAGES