

COMPLEMENTARY SILICON PLASTIC POWER TRANSISTORS

... designed for use as output device in complementary audio amplifiers up to 30-Watts music power per channel

FEATURES:

*Collector-Emitter Sustaining Voltage-

$$V_{CEO(SUS)} = 60 \text{ V (Min)}$$

* DC Current Gain-

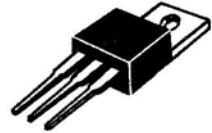
$$hFE = 25-100 @ I_C = 3.0 \text{ A}$$

NPN PNP
MJE2801T MJE2901T

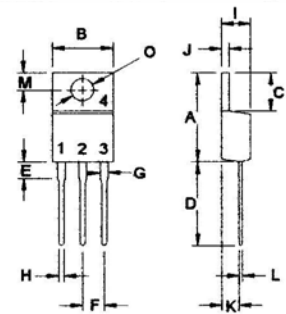
**10 AMPERE
COMPLEMENTARY SILICON
POWER TRANSISTORS
60 VOLTS
75 WATTS**

MAXIMUM RATINGS

Characteristic	Symbol	Rating	Unit
Collector-Emitter Voltage	V_{CEO}	60	V
Collector-Base Voltage	V_{CBO}	60	V
Emitter-Base Voltage	V_{EBO}	4.0	V
Collector Current - Continuous - Peak	I_C I_{CM}	10 15	A
Base current	I_B	5.0	A
Total Power Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	75 0.6	W W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-65 to +150	$^\circ\text{C}$



TO-220



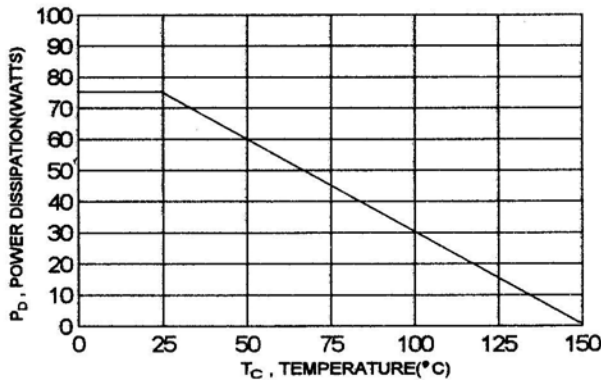
PIN 1.BASE
2.COLLECTOR
3.EMITTER
4.COLLECTOR(CASE)

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	$R_{\theta jc}$	1.67	$^\circ\text{C/W}$

DIM	MILLIMETERS	
	MIN	MAX
A	14.68	16.00
B	9.78	10.42
C	5.02	6.60
D	13.00	14.62
E	3.10	4.19
F	2.41	2.67
G	1.10	1.67
H	0.69	1.01
I	3.21	4.98
J	1.14	1.40
K	2.20	3.30
L	0.28	0.61
M	2.48	3.00
O	3.50	4.00

FIGURE -1 POWER DERATING



ELECTRICAL CHARACTERISTICS ($T_c = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage (1) ($I_C = 200\text{ mA}$, $I_B = 0$)	V_{CEO}	60		V
Collector Cutoff Current ($V_{CB} = 60\text{ V}$, $I_E = 0$) ($V_{CB} = 60\text{ V}$, $I_E = 0$, $T_c = 150^\circ\text{C}$)	I_{CBO}		0.1 2.0	mA
Emitter Cutoff Current ($V_{EB} = 4.0\text{ V}$, $I_C = 0$)	I_{EBO}		1.0	mA

ON CHARACTERISTICS (1)

DC Current Gain ($I_C = 3.0\text{ A}$, $V_{CE} = 2.0\text{ V}$)	hFE	25	100	
Base-Emitter On Voltage ($I_C = 3.0\text{ A}$, $V_{CE} = 2.0\text{ V}$)	$V_{BE(on)}$		1.4	V

(1) Pulse Test: Pulse Width = 300 us, Duty Cycle $\leq 2.0\%$

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FIG-2 "ON" VOLTAGE

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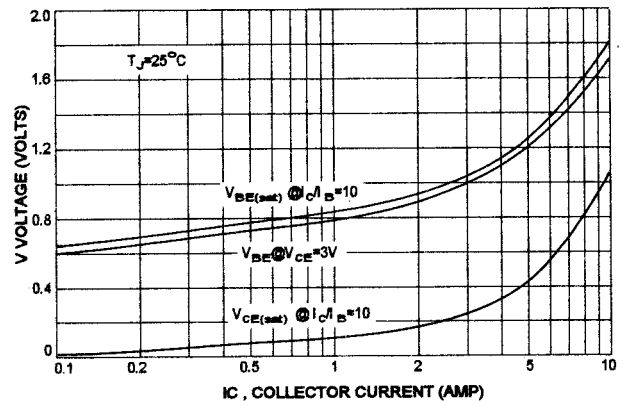
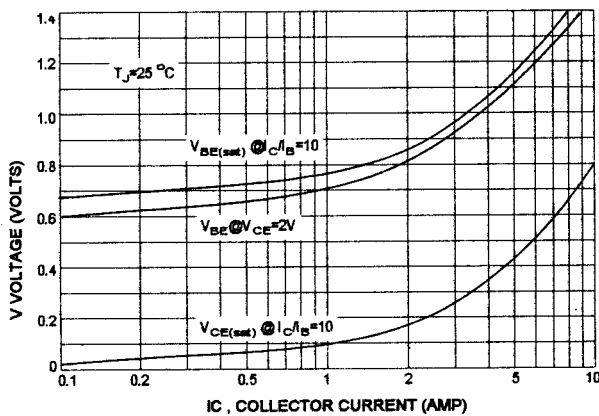
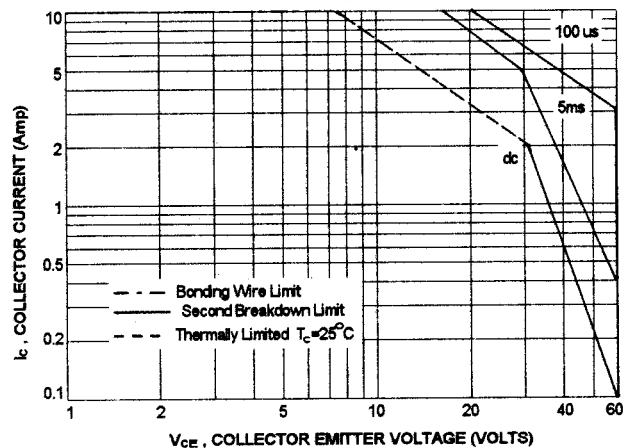
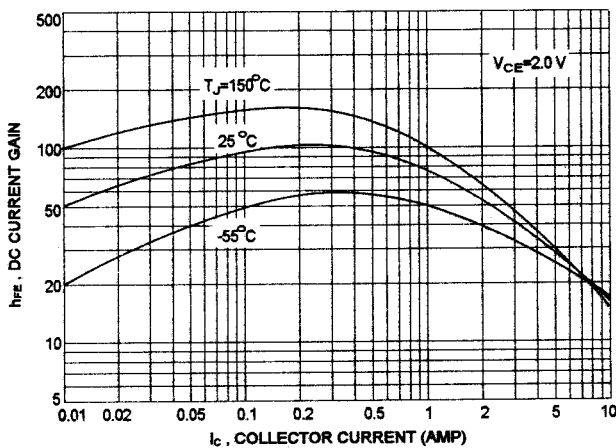


FIG-3 DC CURRENT GAIN

FIG-4 ACTIVE-REGION SAFE OPERATING AREA



There are two limitation on the power handling ability of a transistor :average junction temperature and second breakdown safe operating area curves indicate I_C - V_{CE} limits of the transistor that must be observed for reliable operation i.e., the transistor must not be subjected to greater dissipation than curves indicate.

The data of FIG-4 is base on $T_{J(pk)} = 150^\circ\text{C}$; T_c is variable depending on conditions. second breakdown pulse limits are valid for duty cycles to 10% provided $T_{J(pk)} < 150^\circ\text{C}$. At high case temperatures, thermal limitation will reduce the power that can be handled to values less than the limitations imposed by second breakdown.

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