

## 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-

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

\* DC Current Gain-

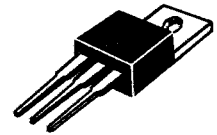
$$hFE = 25-100 @ I_C = 3.0 \text{ A}$$

**NPN**      **PNP**  
**MJE2801T** **MJE2901T**

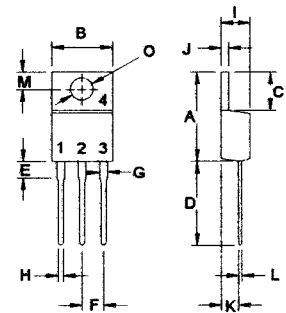
**10 AMPERE  
COMPLEMENTARY SILICON  
POWER TRANSISTORS  
60 VOLTS  
75 WATTS**

### 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 $25^\circ\text{C}$	$P_D$	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**

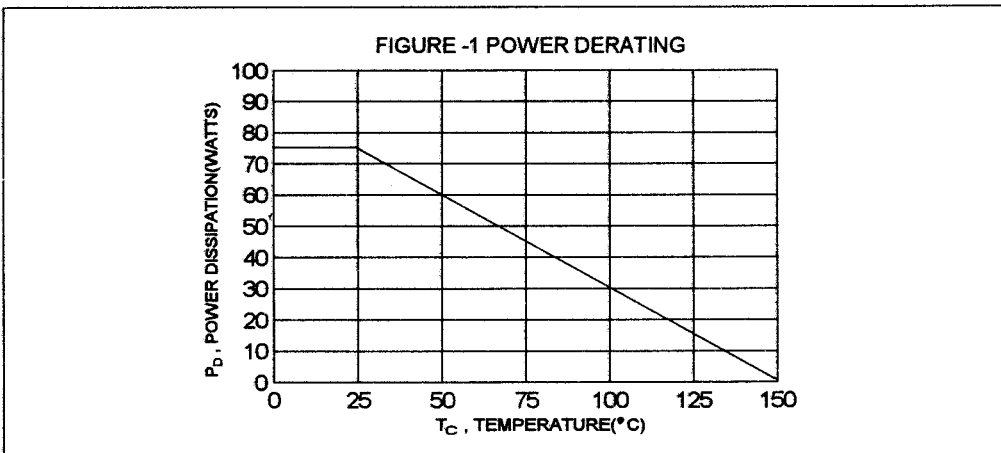


PIN 1.BASE  
2.COLLECTOR  
3.EMITTER  
4.COLLECTOR(CASE)

### 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	15.31
B	9.78	10.42
C	5.01	6.52
D	13.06	14.62
E	3.57	4.07
F	2.42	3.66
G	1.12	1.36
H	0.72	0.96
I	4.22	4.98
J	1.14	1.38
K	2.20	2.97
L	0.33	0.55
M	2.48	2.98
O	3.70	3.90



**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  $\leq 2.0\%$

MJE2801T

FIG-2 "ON" VOLTAGE

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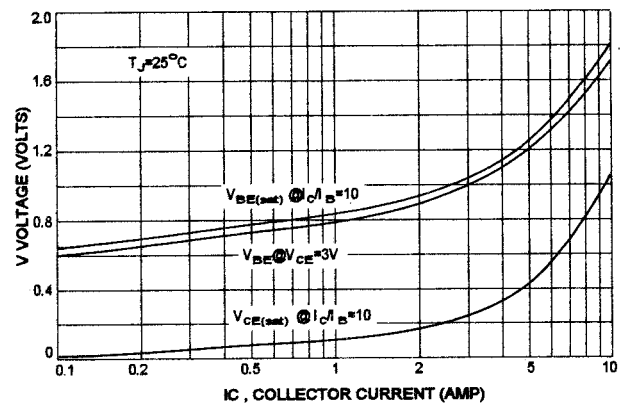
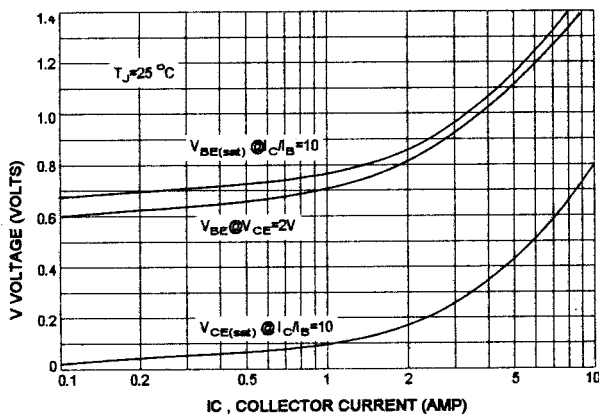
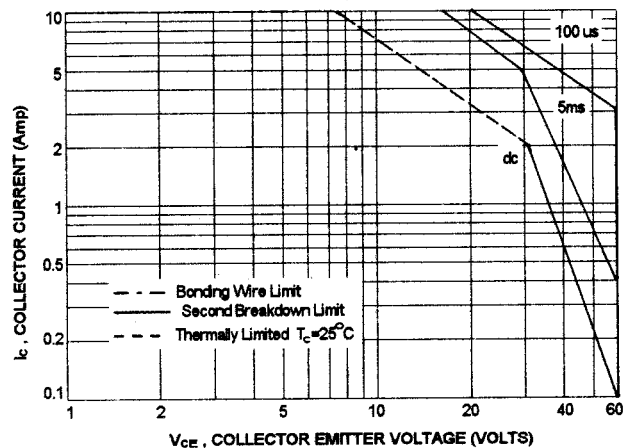
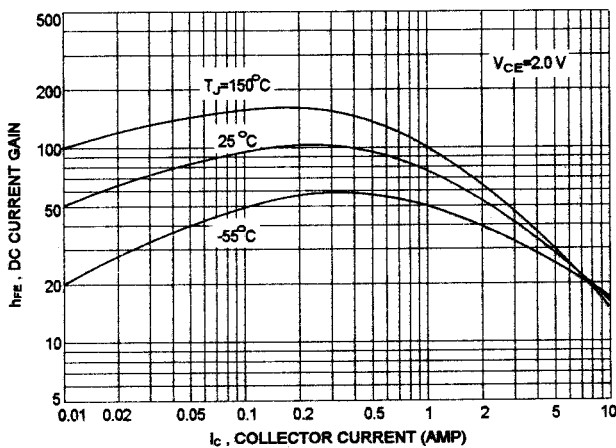


FIG-3 DC CURRENT GAIN

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.