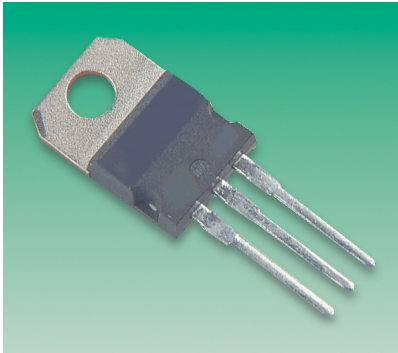


# MJE2955T, 3055T



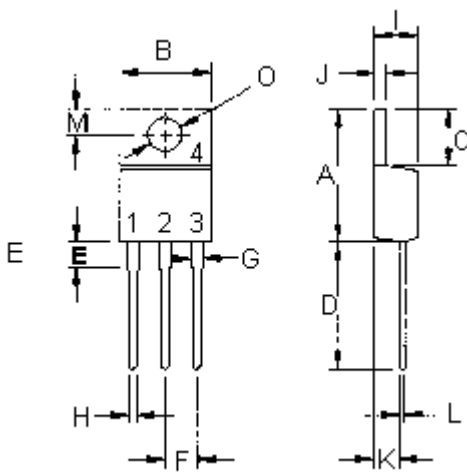
## Complementary Power Transistors



Complementary Silicon Power Transistors are designed for use in general-purpose amplifier and switching applications.

### Features:

- Power dissipation- $P_D = 75W$  at  $T_C = 25^\circ C$ .
- DC current gain  $h_{FE} = 20$  (Minimum) at  $I_C = 4.0A$ .
- $V_{CE(sat)} = 1.1V$  (Maximum) at  $I_C = 4.0A$ ,  $I_B = 400mA$ .



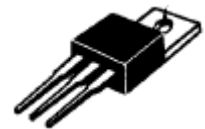
- Pin 1. Base  
 2. Collector  
 3. Emitter  
 4. Collector (Case).

Dimensions	Minimum	Maximum
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

Dimensions : Millimetres

PNP	NPN
MJE2955T	MJE3055T

10 Ampere  
 Complementary Silicon  
 Power Transistors  
 60 Volts  
 75 Watts



TO-220



# MJE2955T, 3055T



## Complementary Power Transistors

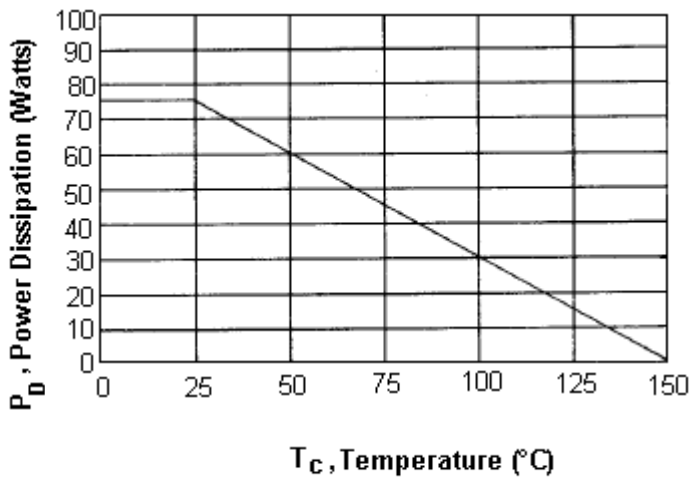
### Maximum Ratings

Parameter	Symbol	Rating	Unit
Collector-Emitter Voltage	$V_{CEO}$	60	V
Collector-Base Voltage	$V_{CBO}$	70	
Emitter-Base Voltage	$V_{EBO}$	5.0	
Collector Current-Continuous	$I_C$	10	A
Base Current	$I_B$	6.0	
Total Power Dissipation at $T_C = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	75 0.6	W W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

### Thermal Characteristic

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

Figure - 1 Power Derating



# MJE2955T, 3055T



## Complementary Power Transistors

### Electrical Characteristics ( $T_C = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Minimum	Maximum	Unit
<b>Off Characteristics</b>				
Collector-Emitter Sustaining Voltage (1) ( $I_C = 200\text{mA}$ , $I_B = 0$ )	$V_{CEO(sus)}$	60	-	V
Collector Cut off Current ( $V_{CE} = 30\text{V}$ , $I_B = 0$ )	$I_{CEO}$	-	0.7	mA
Collector Cut off Current ( $V_{CE} = 70\text{V}$ , $V_{BE(off)} = 1.5\text{V}$ ) ( $V_{CE} = 70\text{V}$ , $V_{BE(off)} = 1.5\text{V}$ , $T_C = 150^\circ\text{C}$ )	$I_{CEX}$	-	1.0 5.0	
Collector Cut off Current ( $V_{CB} = 70\text{V}$ , $I_E = 0$ ) ( $V_{CB} = 70\text{V}$ , $I_E = 0$ , $T_C = 150^\circ\text{C}$ )	$I_{CBO}$	-	1.0 10	
Emitter Cut off Current ( $V_{EB} = 5.0\text{V}$ , $I_C = 0$ )	$I_{EBO}$	-	5.0	
<b>On Characteristics (1)</b>				
DC Current Gain ( $I_C = 4.0\text{A}$ , $V_{CE} = 4.0\text{V}$ ) ( $I_C = 10\text{A}$ , $V_{CE} = 4.0\text{V}$ )	$h_{FE}$	20 5.0	100	-
Collector-Emitter Saturation Voltage ( $I_C = 4.0\text{A}$ , $I_B = 0.4\text{A}$ ) ( $I_C = 10\text{A}$ , $I_B = 3.3\text{A}$ )	$V_{CE(sat)}$	-	1.1 8.0	V
Base-Emitter On Voltage ( $I_C = 4.0\text{A}$ , $V_{CE} = 4.0\text{V}$ )	$V_{BE(on)}$	-	1.8	
<b>Dynamic Characteristics</b>				
Current Gain-Bandwidth Product (2) ( $I_C = 500\text{mA}$ , $V_{CE} = 10\text{V}$ , $f = 500\text{KHz}$ )	$f_T$	2.0	-	MHz

(1) Pulse Test: Pulse Width =  $300\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$ .

(2)  $f_T = |h_{fe}| \cdot f_{test}$ .



# MJE2955T, 3055T



## Complementary Power Transistors

Figure - 2 "ON" Voltage

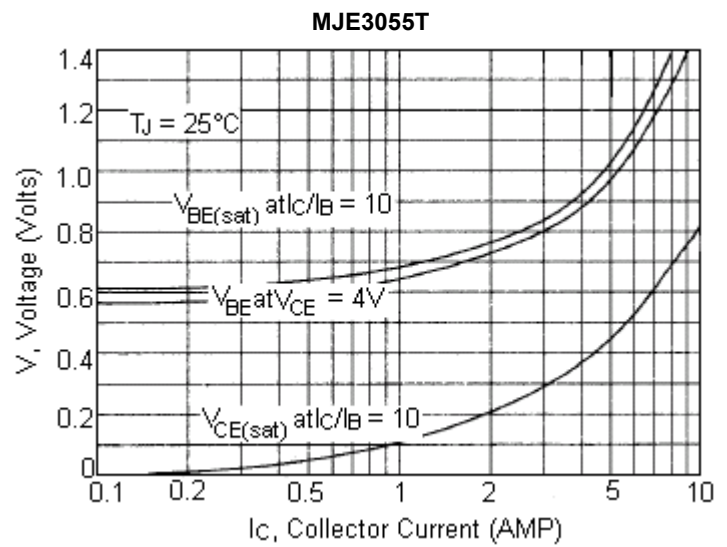
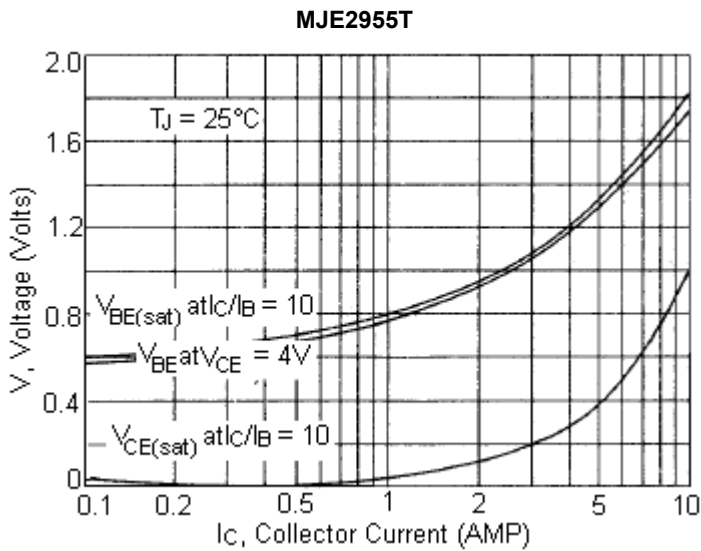
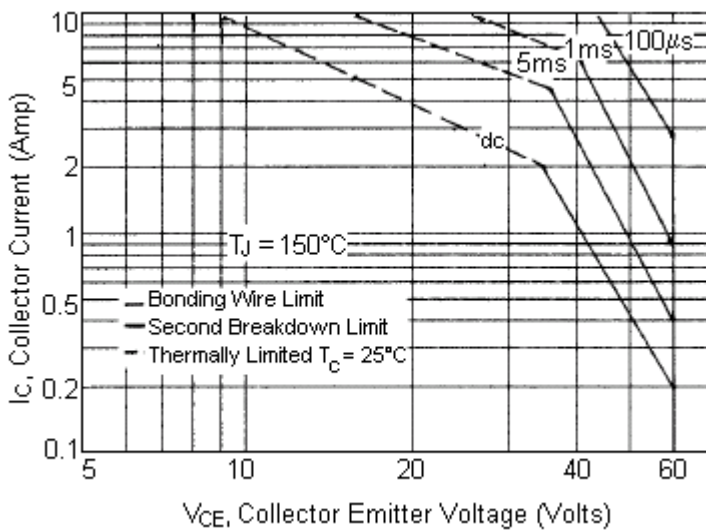


Figure - 3 Active-Region Safe Operating Area



There are two limitations 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 the curves indicate.

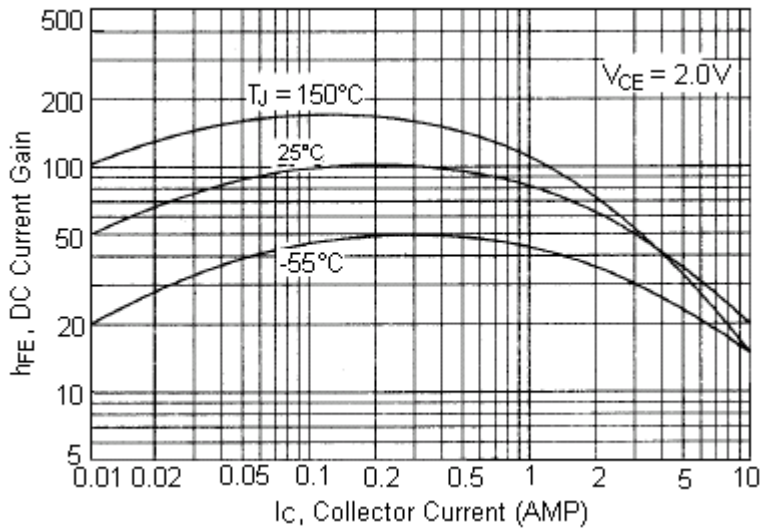
The data of Figure - 3 is based on  $T_{J(PK)} = 150^\circ\text{C}$ ;  $T_C$  is variable depending on conditions. Second breakdown pulse limits are valid for duty cycles to 10% provided  $T_{J(PK)} \leq 150^\circ\text{C}$ . At high case temperatures, thermal limitation will reduce the power that can be handled to values less than the limitations imposed by second breakdown.

# MJE2955T, 3055T



## Complementary Power Transistors

Figure - 4 DC Current Gain



### Specifications

$I_{C(av)}$ maximum (A)	$V_{CE0}$ maximum (V)	$h_{FE}$ minimum at $I_C = 4A$	$P_{tot}$ at $25^\circ C$ (W)	Type	Part Number
10	60	20	75	NPN	MJE3055T
				PNP	MJE2955T

# MJE2955T, 3055T

## Complementary Power Transistors



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