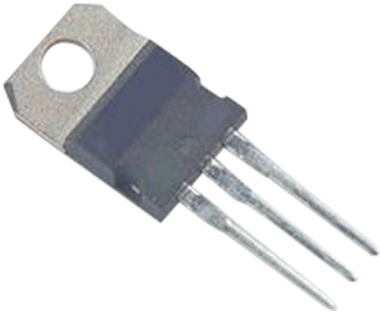


# Complementary Power Transistor **multicomp** PRO



## Description:

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  $h_{FE} = 20$  (Min.) at  $I_C = 4A$
- $V_{CE(sat)} = 1.1V$  (Max.) at  $I_C = 4A$ ,  $I_B = 400mA$

## Maximum Ratings

Characteristic	Symbol	Rating	Unit
Collector-Emitter Voltage	$V_{CEO}$	60	V
Collector-Base Voltage	$V_{CBO}$	70	
Emitter-Base Voltage	$V_{EBO}$	5	
Collector Current-Continuous	$I_C$	10	A
Base Current	$I_B$	6	
Total Power Dissipation at $T_C = 25^\circ C$ Derate above $25^\circ C$	$P_D$	75 0.6	W W/ $^\circ C$
Operating and Storage Junction Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ C$

## Thermal Characteristics

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

# Complementary Power Transistor **multicomp** PRO

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

Characteristic	Symbol	Min.	Max.	Unit
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### Off Characteristics

Collector-Emitter Sustaining Voltage $I_C = 200\text{mA}, I_B = 0$	$V_{CEO(sus)}$	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 5	
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 10	
Emitter Cut off Current $V_{EB} = 5\text{V}, I_C = 0$	$I_{EBO}$	-	5	

### On Characteristics (1)

DC Current Gain $I_C = 4\text{A}, V_{CE} = 4\text{V}$ $I_C = 10\text{A}, V_{CE} = 4\text{V}$	hFE	20 5	100	-
Collector-Emitter Saturation Voltage $I_C = 4\text{A}, I_B = 0.4\text{A}$ $I_C = 10\text{A}, I_B = 3.3\text{A}$	$V_{CE(sat)}$	-	1.1 8	V
Base-Emitter On Voltage $I_C = 4\text{A}, V_{CE} = 4\text{V}$	$V_{BE(on)}$	-	1.8	

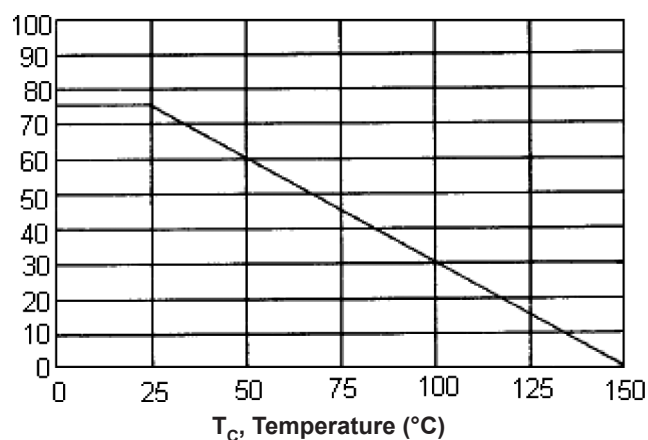
### Dynamic Characteristics

Current Gain-Bandwidth Product (2) $I_C = 500\text{mA}, V_{CE} = 10\text{V}, f = 500\text{kHz}$	$f_T$	2	-	MHz
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(1) Pulse Test: Pulse Width = 300 $\mu\text{s}$ , Duty Cycle  $\leq 2\%$ .

(2)  $f_T = h_{FE} \cdot f_{test}$

Figure - 1 Power Derating



# Complementary Power Transistor **multicomp** PRO

Figure - 2 "ON" Voltage

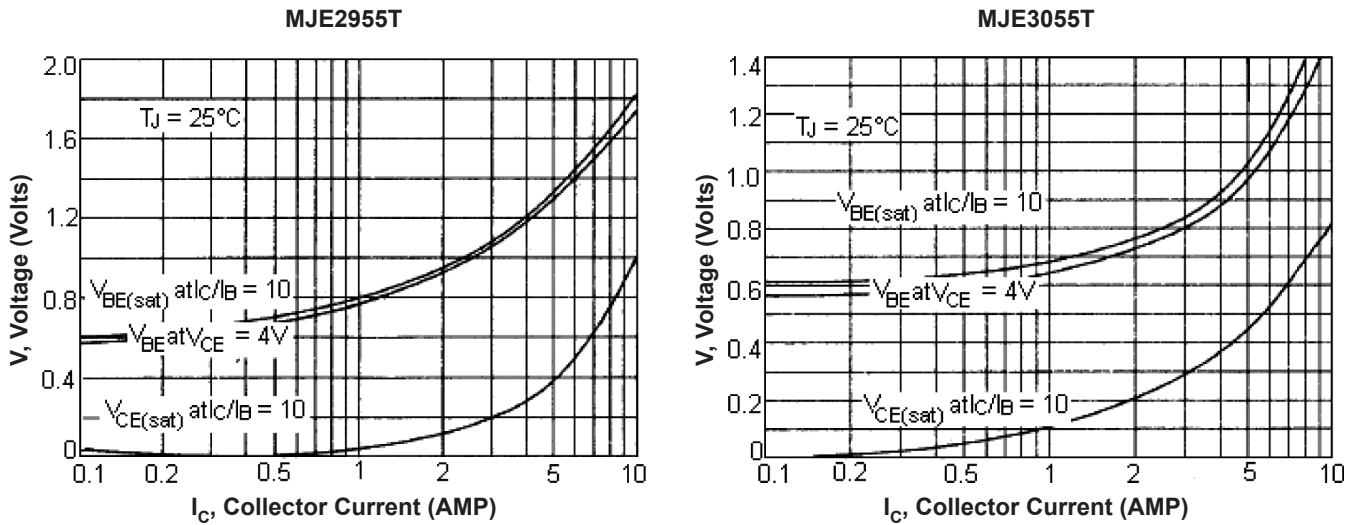
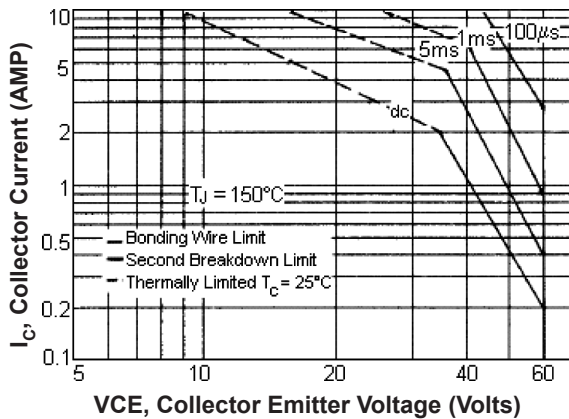


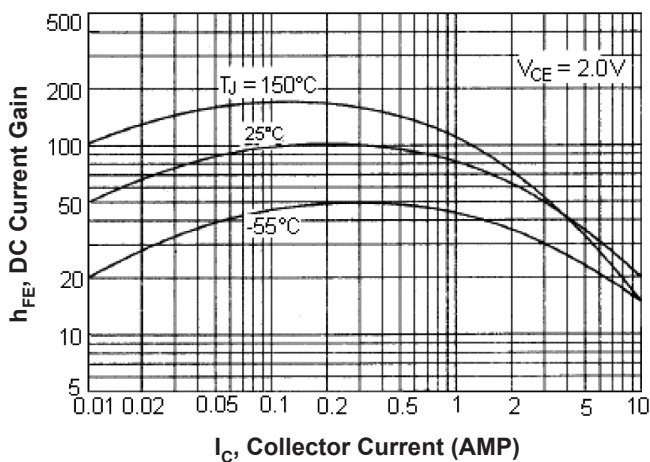
Figure - 3 Active-Region Safe Operating Area



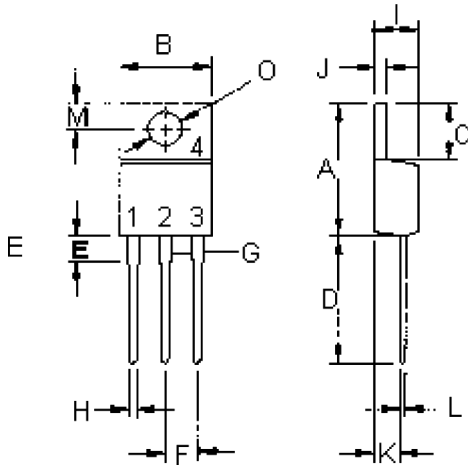
There are two limitations on the power handling ability of a transistor: average junction temperature and second breakdown safe operating area curves indicate  $I_C$ - $V_{CE}$  limits of the transistor that must be observed for reliable operation i.e., the transistor must not be subjected to greater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

Figure - 4 DC Current Gain



# Complementary Power Transistor **multicomp** PRO



### Pin Configuration:

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

Dimensions	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	2.2	2.97
L	0.33	0.55
M	2.48	2.98
O	3.7	3.9

Dimensions : Millimetres

### Part Number Table

Description	Part Number
Transistor, NPN, TO-220	MJE3055T
Transistor, PNP, TO-220	MJE2955T

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