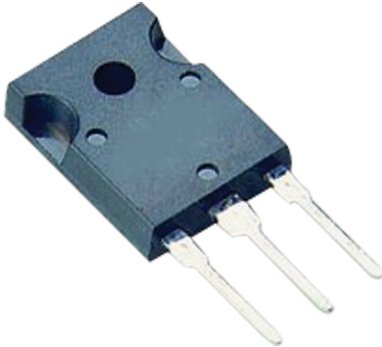


Complementary Power Transistor multicomp^{PRO}



Description:

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

Features:

- Power Dissipation- $P_D = 90W$ at $T_C = 25^\circ C$
- • DC Current Gain $h_{FE} = 20 \sim 100$ 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-Emitter Voltage	V_{CER}	70	
Collector-Base Voltage	V_{CBO}	100	
Emitter-Base Voltage	V_{EBO}	7	
Collector Current-Continuous	I_C	15	A
Base Current	I_B	7	
Total Power Dissipation at $T_C = 25^\circ C$ Derate above $25^\circ C$	P_D	90 0.72	W W/ $^\circ C$
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-65 to +150	$^\circ C$

Thermal Characteristics

Characteristic	Symbol	Max.	Unit
Thermal Resistance Junction to Case	$R_{\theta jc}$	1.39	$^\circ C/W$

Complementary Power Transistor **multicomp**PRO

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

Characteristic	Symbol	Min.	Max.	Unit
----------------	--------	------	------	------

OFF Characteristics

Collector-Emitter Sustaining Voltage (1) $I_C = 30\text{mA}$, $I_B = 0$	$V_{\text{CEO(SUS)}}$	60	-	V
Collector Cut off Current $V_{\text{CE}} = 70\text{V}$, $R_{\text{BE}} = 100\Omega$	I_{CER}	-	1	mA
Collector Cut off Current $V_{\text{CE}} = 30\text{V}$, $I_B = 0$	I_{CEO}	-	0.7	
Collector Cut off Current $V_{\text{CE}} = 100\text{V}$, $V_{\text{BE(off)}} = 1.5\text{V}$	I_{CEV}	-	5	
Emitter Cut off Current $V_{\text{EB}} = 7\text{V}$, $I_C = 0$	I_{EBO}	-		

ON Characteristics (1)

DC Current Gain $I_C = 4\text{A}$, $V_{CE} = 4\text{V}$ $I_C = 10\text{A}$, $V_{CE} = 4\text{V}$	h_{FE}	20 5	100	-
Collector-Emitter Saturation Voltage $I_C = 4\text{A}$, $I_B = 0.4\text{A}$ $I_C = 10\text{A}$, $I_B = 3.3\text{A}$	$V_{CE(\text{sat})}$	-	1.1 3	V
Base-Emitter On Voltage $I_C = 4\text{A}$, $V_{CE} = 4\text{V}$	$V_{BE(\text{on})}$	-	1.8	

Dynamic Characteristics

Current Gain Bandwidth Product $I_C = 500\text{mA}$, $V_{CE} = 10\text{V}$, $f = 1\text{MHz}$	f_T	2.5	-	MHz
Small-Signal Current Gain $I_C = 1\text{A}$, $V_{CE} = 4\text{V}$, $f = 1\text{kHz}$	h_{fe}	15	-	-

(1) Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2\%$

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

Figure - 1 Power Derating

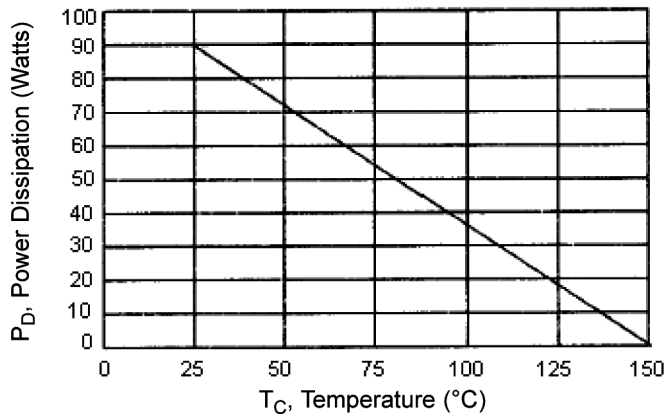


Figure - 2 DC Current Gain

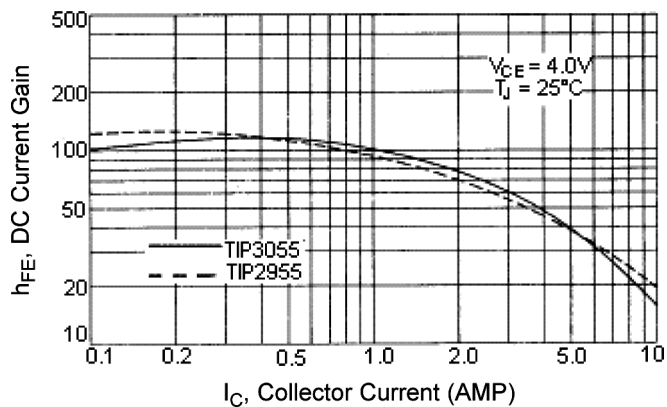
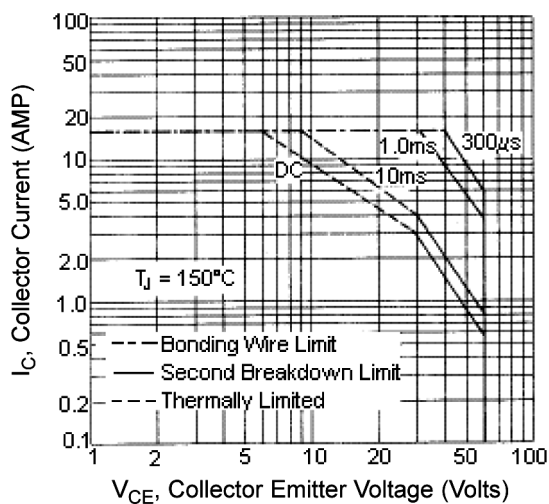
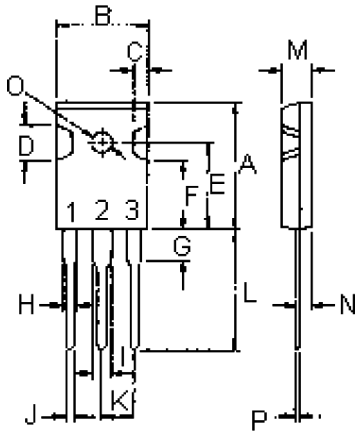


Figure - 3 Active Region Safe Operating Area



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 $T_C = 150^\circ C$; $T_{J(PK)}$ is variable depending on power level. Second breakdown pulse limits are valid for duty cycles to 10% but must be derated for temperature.

Complementary Power Transistor **multicomp**PRO



Pin Configuration:

1. Base
2. Collector
3. Emitter

Dimensions	Min.	Max.
A	20.63	22.38
B	15.38	16.2
C	1.9	2.7
D	5.1	6.1
E	14.81	15.22
F	11.72	12.84
G	4.2	4.5
H	1.82	2.46
I	2.92	3.23
J	0.89	1.53
K	5.26	5.66
L	18.5	21.5
M	4.68	5.36
N	2.4	2.8
O	3.25	3.65
P	0.55	0.7

Dimensions : Millimetres

Part Number Table

Description	Part Number
Transistor, NPN, TO-247	TIP3055
Transistor, PNP, TO-3P	TIP2955

Important Notice : This data sheet and its contents (the "Information") belong to the members of the AVNET group of companies (the "Group") or are licensed to it. No licence is granted for the use of it other than for information purposes in connection with the products to which it relates. No licence of any intellectual property rights is granted. The Information is subject to change without notice and replaces all data sheets previously supplied. The Information supplied is believed to be accurate but the Group assumes no responsibility for its accuracy or completeness, any error in or omission from it or for any use made of it. Users of this data sheet should check for themselves the Information and the suitability of the products for their purpose and not make any assumptions based on information included or omitted. Liability for loss or damage resulting from any reliance on the Information or use of it (including liability resulting from negligence or where the Group was aware of the possibility of such loss or damage arising) is excluded. This will not operate to limit or restrict the Group's liability for death or personal injury resulting from its negligence. Multicomp Pro is the registered trademark of Premier Farnell Limited 2019.

Newark.com/multicomp-pro
Farnell.com/multicomp-pro
Element14.com/multicomp-pro

multicompPRO