MOSPEC

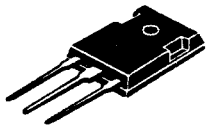
COMPLEMENTARY SILICON POWER TRANSISTORS

...designed for use in general-purpose amplifier and switching applications

FEATURES:
* Power Dissipation - P_D = 90W @ T_C = 25°C
* DC Current Gain hFE = 20 ~ 100 @ I_C = 4.0 A
* $V_{CE(sat)}$ = 1.1 V (Max.) @ I_C = 4.0 A, I_B = 400 mA

NPN TIP3055 **PNP TIP2955**

15 AMPERE
COMPLEMENTARY SILICON
POWER TRANSISTORS
60 VOLTS
90 WATTS



TO-247(3P)

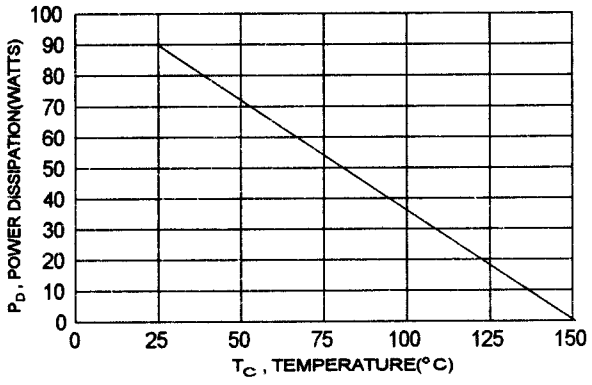
MAXIMUM RATINGS

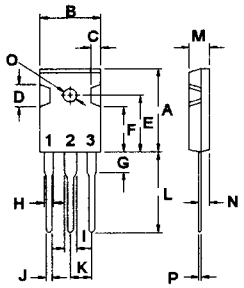
Characteristic	Symbol	Rating	Unit
Collector-Emitter Voltage	V_{CEO}	60	V
Collector-Emitter Voltage	V_{CER}	70	V
Collector-Base Voltage	V_{CBO}	100	V
Emitter-Base Voltage	V_{EBO}	7.0	V
Collector Current-Continuous	I_C	15	A
Base Current	I_B	7.0	A
Total Power Dissipation @T_C=25°C Derate above 25°C	P_D	90 0.72	W W/°C
Operating and Storage Junction Temperature Range	T_J, T_{STG}	- 65 to +150	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	Rθjc	1.39	°C/W

FIGURE -1 POWER DERATING





PIN 1.BASE
2.COLLECTOR
3.EMITTER

DIM	MILLIMETERS	
	MIN	MAX
A	20.63	22.38
B	15.38	16.20
C	1.90	2.70
D	5.10	6.10
E	14.81	15.22
F	11.72	12.84
G	4.20	4.50
H	1.82	2.46
I	2.92	3.23
J	0.89	1.53
K	5.26	5.66
L	18.50	21.50
M	4.68	5.36
N	2.40	2.80
O	3.25	3.65
P	0.55	0.70

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector - Emitter Sustaining Voltage (1) (I_C = 30 mA, I_B = 0)	$V_{CEO(SUS)}$	60		V
Collector Cutoff Current (V_{CE} = 70 V, R_{BE} = 100 ohm)	I_{CER}		1.0	mA
Collector Cutoff Current (V_{CE} = 30 V, I_B = 0)	I_{CEO}		0.7	mA
Collector Cutoff Current (V_{CE} = 100 V, $V_{BE(off)}$ = 1.5 V)	I_{CEV}		5.0	mA
Emitter Cutoff Current (V_{EB} = 7.0 V , I_C = 0)	I_{EBO}		5.0	mA
ON CHARACTERISTICS (1)				
DC Current Gain (I_C = 4.0 A , V_{CE} = 4.0 V) (I_C = 10 A , V_{CE} = 4.0 V)	hFE	20 5.0	100	
Collector - Emitter Saturation Voltage (I_C = 4.0 A , I_B = 0.4 A) (I_C = 10 A, I_B = 3.3 A)	$V_{CE(sat)}$		1.1 3.0	V
Base - Emitter On Voltage (I_C = 4.0 A, V_{CE} = 4.0 V)	$V_{BE(on)}$		1.8	V
DYNAMIC CHARACTERISTICS				
Current Gain - Bandwidth Product (I_C = 500 mA , V_{CE} = 10 V ,f = 1.0 MHz)	f_T	2.5		MHz
Small-Signal Current Gain (I_C = 1.0 A, V_{CE} = 4.0 V, f = 1 KHz)	h_{FE}	15		

(1) Pulse Test: Pulse width = 300 μs , Duty Cycle ≦ 2.0%

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

FIG-2 DC CURRENT GAIN

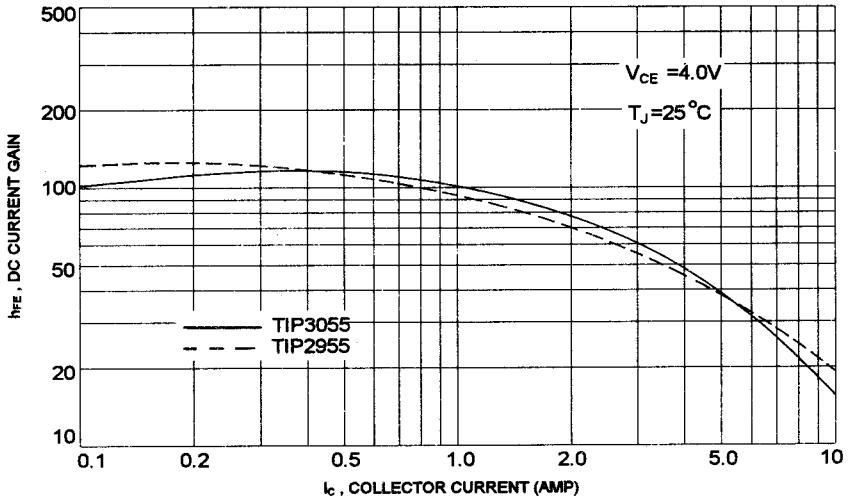
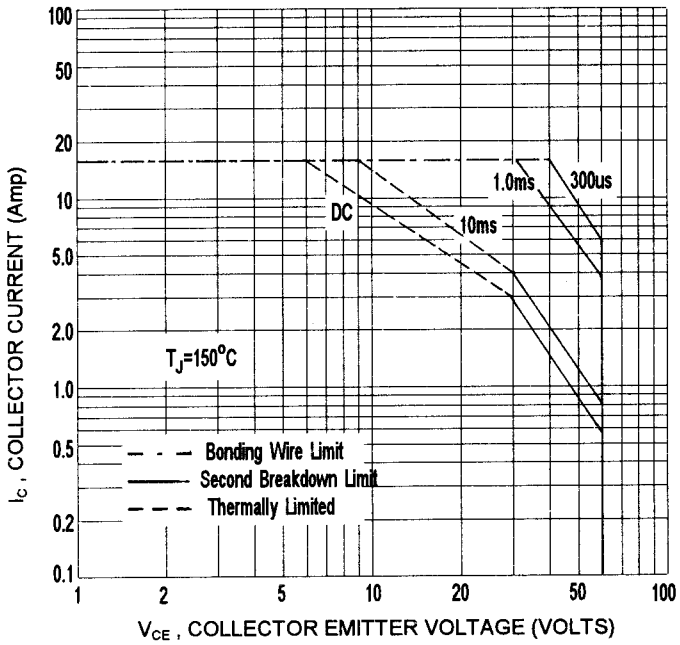


FIG-3 ACTIVE-REGION SAFE OPERATING AREA



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-3 is base on T_C=150 °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.