MOSPEC

COMPLEMENTARY SILICON POWER TRANSISTORS

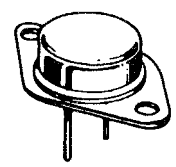
...designed for use in general-purpose amplifier and switching applications

FEATURES:

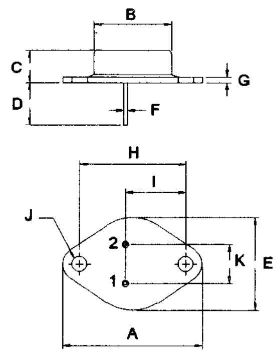
* Power Dissipation - P_D = 115W @ T_C = 25°C
* DC Current Gain hFE = 20 ~ 70 @ I_C = 4.0 A
* $V_{CE(sat)}$ = 1.1 V (Max.) @ I_C = 4.0 A, I_B = 400 mA

NPN	PNP
2N3055	MJ2955

15 AMPERE
COMPLEMENTARY SILICON
POWER TRANSISTORS
60 VOLTS
115 WATTS



TO-3



PIN 1.BASE
2.EMITTER
COLLECTOR(CASE)

DIM	MILLIMETERS	
	MIN	MAX
A	38.75	39.96
B	19.28	22.23
C	7.96	9.28
D	11.18	12.19
E	25.20	26.67
F	0.92	1.09
G	1.38	1.62
H	29.90	30.40
I	16.64	17.30
J	3.88	4.36
K	10.67	11.18

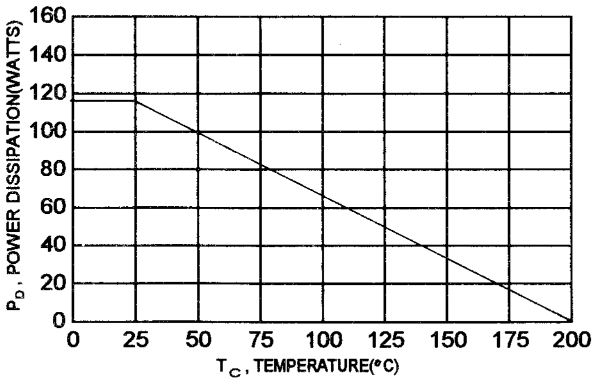
MAXIMUM RATINGS

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	115 0.657	W W/°C
Operating and Storage Junction Temperature Range	T_J,T_{STG}	- 65 to +200	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	Rθjc	1.52	°C/W

FIGURE -1 POWER DERATING



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

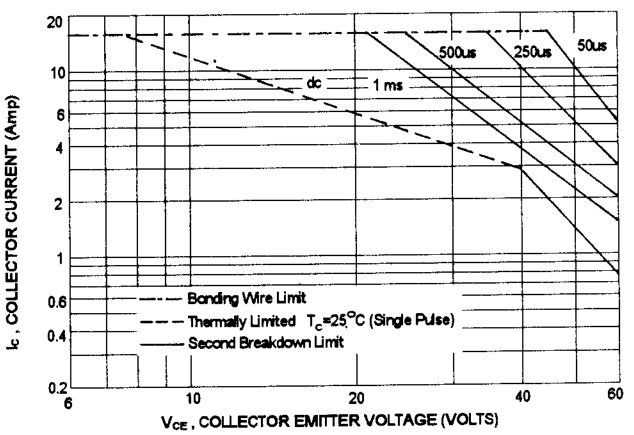
Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector - Emitter Sustaining Voltage (1) (I_C = 200 mA, I_B = 0)	$V_{CEO(SUS)}$	60		V
Collector-Emitter Sustaining Voltage (1) (I_C = 200 mA, R_{BE} = 100 Ohms)	$V_{CER(SUS)}$	70		V
Collector Cutoff Current (V_{CE} = 30 V, I_B = 0)	I_{CEO}		0.7	mA
Collector Cutoff Current (V_{CE} = 100 V, $V_{BE(off)}$ = 1.5 V) (V_{CE} = 100 V, $V_{BE(off)}$ = 1.5 V, T_C = 150°C)	I_{CEX}		1.0 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	70	
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)	$V_{BE(on)}$		1.5	V
DYNAMIC CHARACTERISTICS				
Current Gain - Bandwidth Product (2) (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	120	

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

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

2N3055,MJ2955

ACTIVE REGION SAFE OPERATING AREA(SOA)

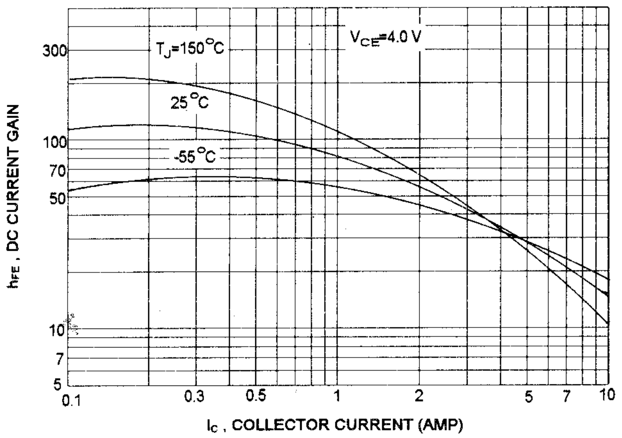


There are two limitation on the power handling ability of a transistor: average junction temperature and second breakdown safe operating area curves indicate I_C-V_{CE} limits of the transistor that must be observed for reliable operation i.e., the transistor must not be subjected to greater dissipation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

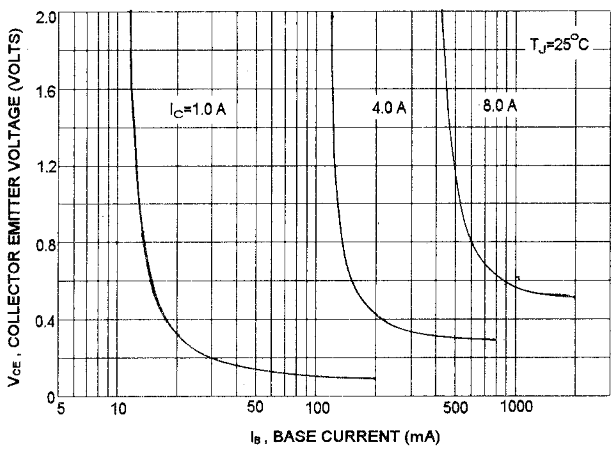
The data of SOA curve is base on $T_{J(PK)}$=200 °C;T_C is variable depending on conditions. second breakdown pulse limits are valid for duty cycles to 10% provided $T_{J(PK)} \le 200°C$, At high case temperatures, thermal limitation will reduce the power that can be handled to values less than the limitations imposed by second breakdown.

NPN 2N3055

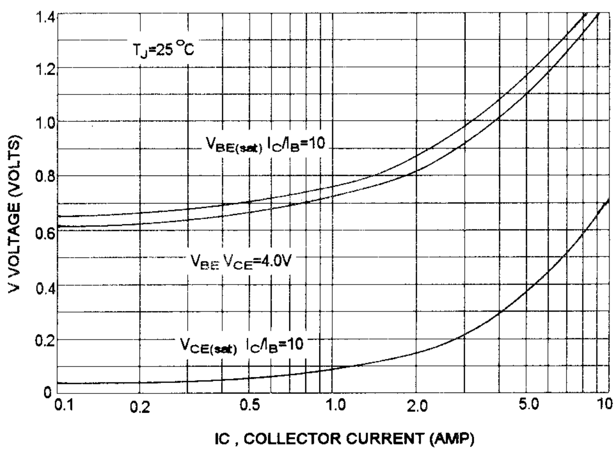
DC CURRENT GAIN



COLLECTOR SATURATION REGION

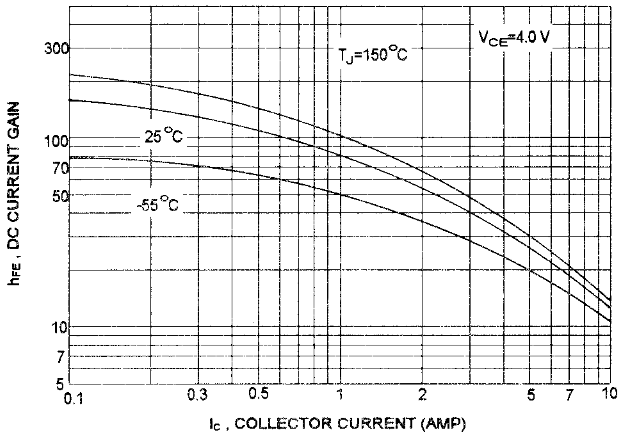


"ON" VOLTAGES

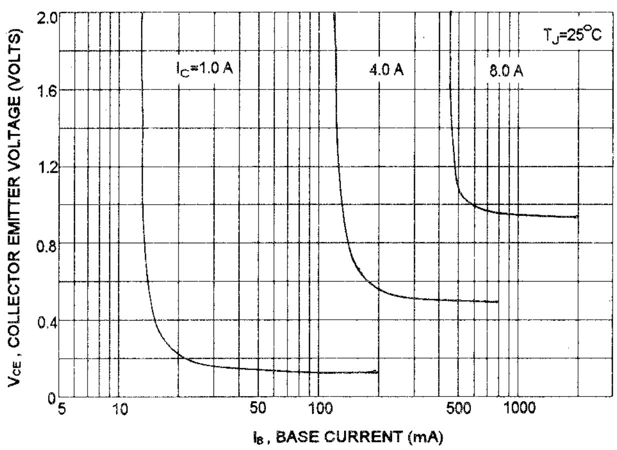


PNP MJ2955

DC CURRENT GAIN



COLLECTOR SATURATION REGION



"ON" VOLTAGES