MOSPEC

SWITCHMODE SERIES NPN POWER TRANSISTORS

... designed for use in high-voltage,high-speed,power switching in inductive circuit, they are particularly suited for 115 and 220 V switchmode applications such as switching regulator's,inverters,DC -DC and conveter

NPN

2SC3039

FEATURES:

*Collector-Emitter Sustaining Voltage-

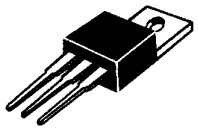
$V_{CEO(SUS)}$ = 400 V (Min)

* Collector-Emitter Saturation Voltage -

$V_{CE(sat)}$ = 1.0 V (Max.) @ I_C = 4.0 A, I_B = 0.8 A

* Switching Time - t_f = 1.0 us (Max.) @ I_C =5.0 A

7.0 AMPERE
SILICON POWER
TRANASISTORS
400 VOLTS
50 WATTS



TO-220

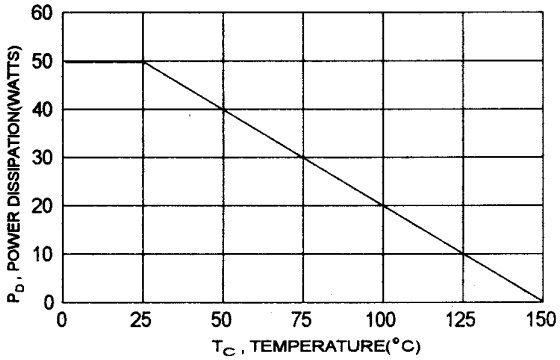
MAXIMUM RATINGS

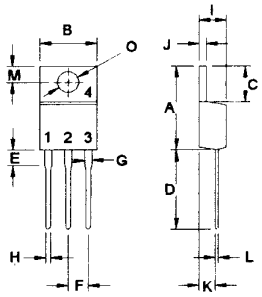
Characteristic	Symbol	2SC3039	Unit
Collector-Emitter Voltage	V_{CEO}	400	V
Collector-Base Voltage	V_{CBO}	500	V
Emitter-Base Voltage	V_{EBO}	7.0	V
Collector Current - Continuous - Peak	I_C I_{CM}	7.0 14	A
Base current	I_B	3.0	A
Total Power Dissipation @T_C = 25°C Derate above 25°C	P_D	50 0.4	W W/°C
Operating and Storage Junction Temperature Range	T_J , T_{STG}	-55 to +150	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance Junction to Case	Rθjc	2.5	°C/W

FIGURE -1 POWER DERATING





PIN 1.BASE
2.COLLECTOR
3.EMITTER
4.COLLECTOR(CASE)

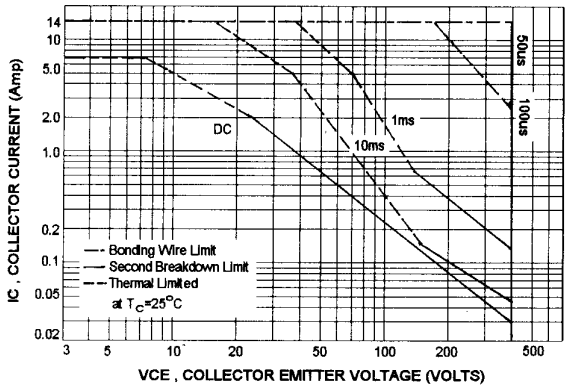
DIM	MILLIMETERS	
	MIN	MAX
A	14.68	15.31
B	9.78	10.42
C	5.01	6.52
D	13.06	14.62
E	3.57	4.07
F	2.42	3.66
G	1.12	1.36
H	0.72	0.96
I	4.22	4.98
J	1.14	1.38
K	2.20	2.97
L	0.33	0.55
M	2.48	2.98
O	3.70	3.90

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

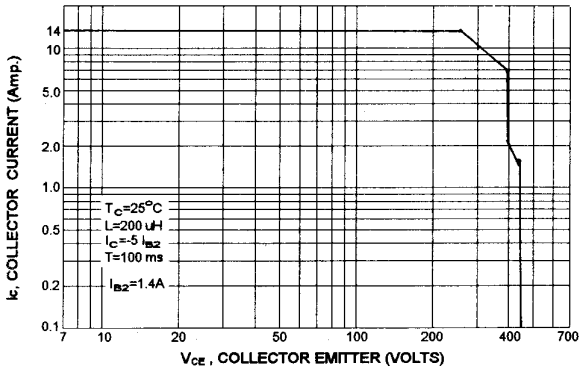
Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Sustaining Voltage (I_C= 7.0 A, I_{B1}= 1.4 A, L=50 uH)	$V_{CEO(sus)}$	400		V
Collector-Base Breakdown Voltage (I_C= 1.0 mA, I_E= 0)	$V_{(BR)CBO}$	500		V
Collector-Emitter Breakdown Voltage (I_C= 5.0 mA, I_B= 0)	$V_{(BR)CEO}$	400		V
Emitter-Base Breakdown Voltage (I_E= 1.0 mA, I_C= 0)	$V_{(BR)EBO}$	7.0		V
Collector Cutoff Current (V_{CB}= 400 V, I_E= 0)	I_{CBO}		10	uA
Emitter Cutoff Current (V_{EB}= 5.0 V, I_C= 0)	I_{EBO}		10	uA
ON CHARACTERISTICS (1)				
DC Current Gain (I_C= 0.8 A, V_{CE}= 5.0 V) (I_C= 4.0 A, V_{CE}= 5.0 V)	hFE(2) hFE	15 8.0	50	
Collector-Emitter Saturation Voltage (I_C= 4.0 A, I_B= 800 mA)	$V_{CE(sat)}$		1.0	V
Base-Emitter Saturation Voltage (I_C= 4.0 A, I_B= 800 mA)	$V_{BE(sat)}$		1.5	V
SWITCHING CHARACTERISTICS				
On Time	V_{CC}= 200V, I_C= 5.0A I_{B1}=-I_{B2}= 1.0A R_L=40 ohm	t on	1.0	us
Storage Time		t s	2.5	us
Fall Time		t f	1.0	us

(1) Pulse Test: Pulse Width =300 us,Duty Cycle ≦ 2.0%,
* hFE(2) Classification: L : 15 --- 30 ; M : 20 --- 40 ; N : 30 --- 50

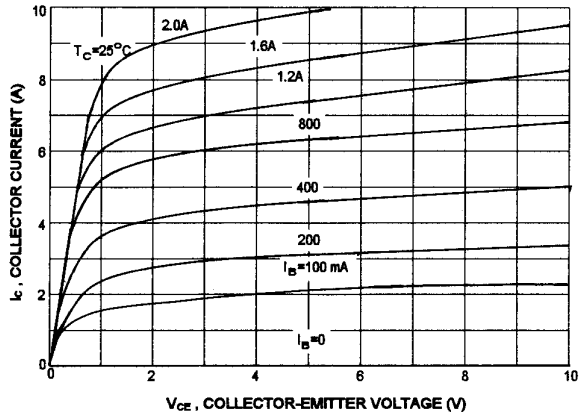
SAFE OPERATING AREA



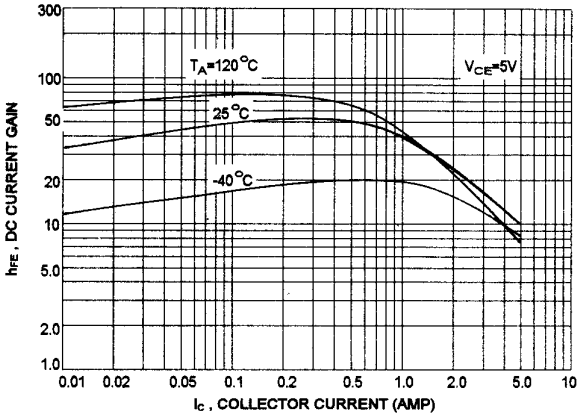
REVERSE BIASE SAFE OPERATING AREA



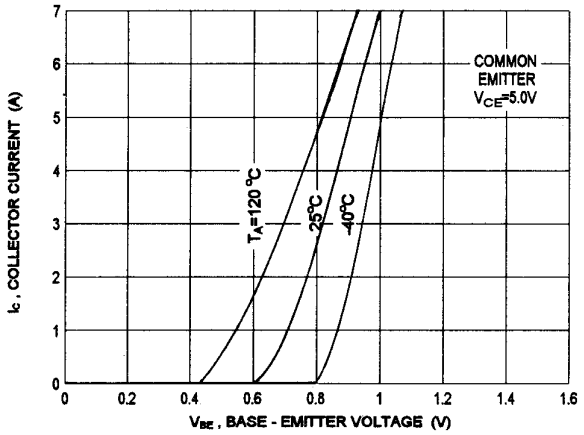
Ic - Vce



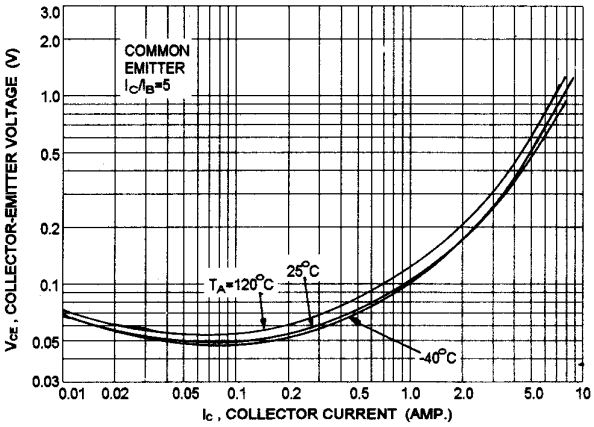
DC CURRENT GAIN



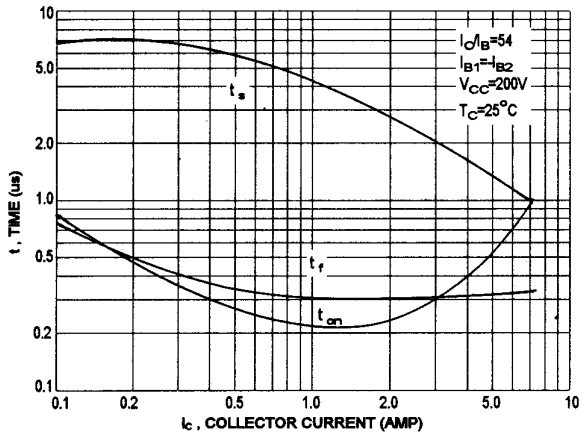
Ic - Vbe



V_{CE}-Ic



SWITCHING TIME



V_{BE}-Ic