MOSPEC

SWITCHMODE SERIES NPN SILICON POWER TRANSISTORS

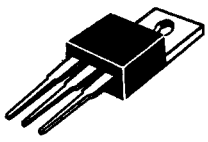
These devices are designed for high-voltage, high-speed power switching inductive circuits where fall time is critical. They are particularly suit for 115 and 220 V SWICHMODE applications such as Switching Regulators,Iverters

NPN
2SC3086

3 AMPERE
SILICON POWER
TRANSISTORS
500 VOLTS
40 WATTS

FEATURES:

* Collector-Emitter Sustaining Voltage-
  $V_{CEO(sus)}$ = 500V(Min)
* SOA and Switching Application Information.



TO-220

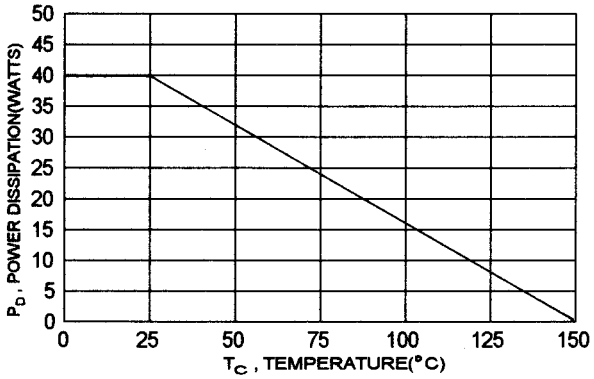
MAXIMUM RATINGS

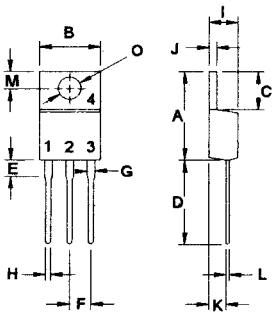
Characteristic	Symbol	Rating	Unit
Collector-Emitter Voltage	V_{CEO}	500	V
Collector-Base Voltage	V_{CBO}	800	V
Emitter-Base Voltage	V_{EBO}	7.0	V
Collector Current - Continuous -peak	I_C I_{CM}	3.0 6.0	A
Base Current - Continuous	I_B	1.0	A
Total Power Dissipation@T_C = 25°C Derate above 25°C	P_D	40 320	W mW/°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	3.125	°C/W

FIGURE -1 POWER DERATING





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

DIM	MILLIMETERS	
	MIN	MAX
A	14.68	15.32
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 Breakdown Voltage (I_C = 1.0 mA ,. I_B = 0)	$V_{(BR)CEO}$	500		V
Collector-Base Breakdown Voltage (I_C = 1.0 mA , I_E = 0)	$V_{(BR)CBO}$	800		V
Emitter-Base Breakdown Voltage (I_C = 1.0 mA , I_C = 0)	$V_{(BR)EBO}$	7.0		V
Collector Cutoff Current (V_{CB} = 500 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 (V_{CE} = 5.0 V, I_C = 0.3 A) (V_{CE}= 5.0 V, I_C= 1.5 A)	hFE(2) hFE	15 8.0	50	
Collector-Emitter Saturation Voltage (I_C = 1.5 A, I_B = 0.3 A)	$V_{CE(sat)}$		1.0	V
Base-Emitter Saturation Voltage (I_C =1.5 A, I_B = 0.3 A)	$V_{BE(sat)}$		1.5	V
DYNAMIC CHARACTERISTICS				
Current-Gain Bandwidth Product (I_C= 300 mA,V_{CE}= 10V, f = 1MHz)	f_T	5.0		MHz

SWITCHING CHARACTERISTICS

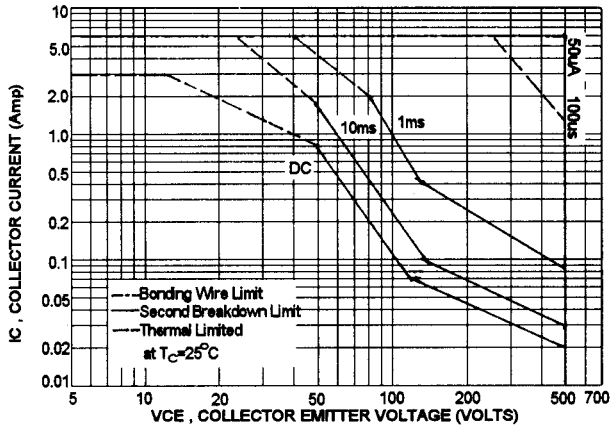
Turn On Time	V_{CC} = 200V, I_C = 2.0 A	t_{on}		1.0	us
Storage Time	I_{B1} = -I_{B2} = 0.3A	t_s		3.0	us
Fall Time	R_L= 100 ohm	t_f		1.0	us

(1)Pulse Test: Pulse width =300 us , Duty Cycle ≦2%

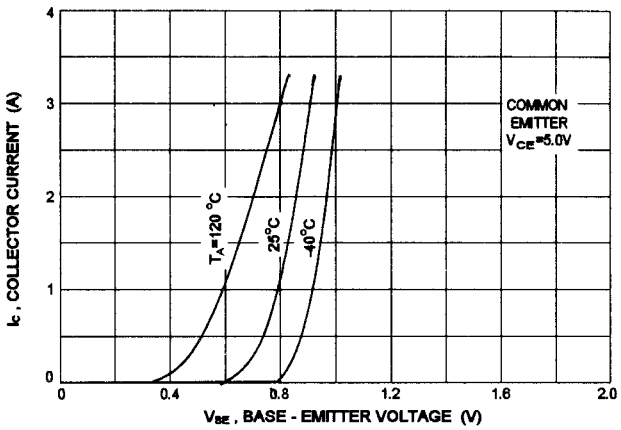
*hFE(2) Classification:

15	L	30	20	M	40	30	N	50

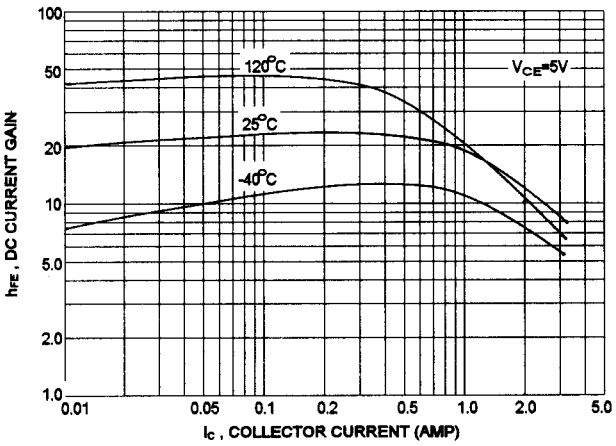
SAFE OPERATING AREA



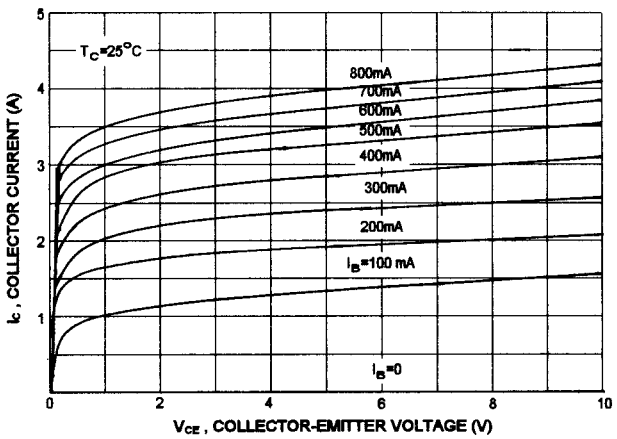
Ic - Vbe



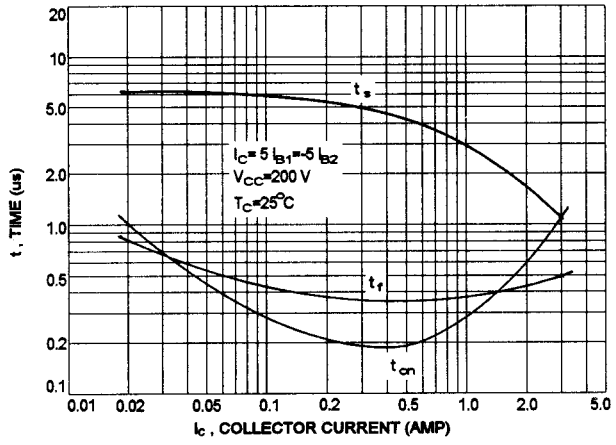
DC CURRENT GAIN



Ic - Vce



SWITCHING TIME



"ON" VOLTAGES

