MOSPEC

COMPLEMENTARY SILICON HIGH-POWER TRANSISTORS

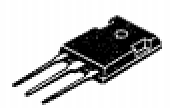
... designed for use in general purpose power amplifier and switching applications.

FEATURES:

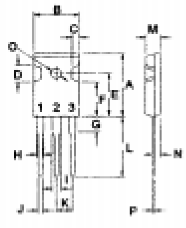
* Collector-Emitter Sustaining Voltage -
  $V_{CEO(sus)}$ = 40V(Min)- TIP35,TIP36
  60V(Min)- TIP35A,TIP36A
  80V(Min)- TIP35B,TIP36B
  100V(Min)- TIP35C,TIP36C
* DC Current Gain hFE=25(Min)@I_C= 1.5A
* Current Gain-Bandwidth Product f_T=3.0 MHz (Min)@ I_C=1.0A

NPN	PNP
TIP35	TIP36
TIP35A	TIP36A
TIP35B	TIP36B
TIP35C	TIP36C

25 AMPERE
COMPLEMENTARY SILICON
POWER TRANSISTORS
40 -100 VOLTS
125 WATTS



TO-247(3P)



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

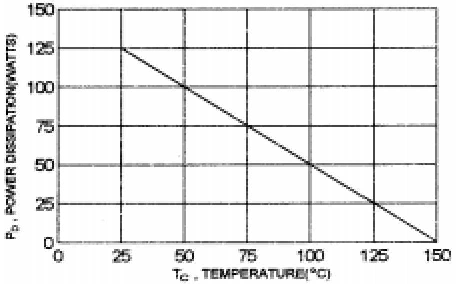
MAXIMUM RATINGS

Characteristic	Symbol	TIP35 TIP36	TIP35A TIP36A	TIP35B TIP36B	TIP35C TIP36C	Unit
Collector-Emitter Voltage	V_{CEO}	40	60	80	100	V
Collector-Base Voltage	V_{CBO}	40	60	80	100	V
Emitter-Base Voltage	V_{EBO}	5.0				V
Collector Current - Continuous - Peak	I_C	25 40				A
Base Current	I_B	5.0				A
Total Power Dissipation@T_C = 25°C Derate above 25°C	P_D	125 1.0				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	1.0	°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= 30 mA, I_B= 0)	TIP35,TIP36 TIP35A,TIP36A TIP35B,TIP36B TIP35C,TIP36C	$V_{CEO(sus)}$	40 60 80 100		V
Collector Cutoff Current (V_{CE}= 30 V, I_B= 0) (V_{CE}= 60 V, I_B= 0)	 TIP35,TIP36,TIP35A,TIP36A TIP35B,TIP36B,TIP35C,TIP36C	I_{CEO}		 1.0 1.0	mA
Collector Cutoff Current (V_{CE}= 40 V, V_{EB}= 0) (V_{CE}= 60 V, V_{EB}= 0) (V_{CE}= 80 V, V_{EB}= 0) (V_{CE}= 100 V, V_{EB}= 0)	 TIP35,TIP36 TIP35A,TIP36A TIP35B,TIP36B TIP35C,TIP36C	I_{CES}		 0.7 0.7 0.7 0.7	mA
Emitter Cutoff Current (V_{EB}= 5.0 V, I_C= 0)		I_{EBO}		1.0	mA
ON CHARACTERISTICS (1)					
DC Current Gain (I_C = 1.5 A, V_{CE} = 4.0 V,) (I_C = 15 A, V_{CE} = 4.0 V,)		hFE	 25 15	 75	
Collector-Emitter Saturation Voltage (I_C = 15 A, I_B = 1.5 A) (I_C = 25 A, I_B = 5.0 A)		$V_{CE(sat)}$		 1.8 4.0	V
Base-Emitter On Voltage (I_C =15 A, V_{CE}= 4.0 V) (I_C =25 A, V_{CE}= 4.0 V)		$V_{BE(on)}$		 2.0 4.0	V
DYNAMIC CHARACTERISTICS					
Current Gain - Bandwidth Product (2) (I_C = 1.0A , V_{CE} = 10 V , f_{TEST} = 1 MHz)		f_T	3.0		MHz
Small Signal Current Gain (I_C = 1.0A , V_{CE} = 10 V , f = 1 kHz)		h_{fe}	25		

(1) Pulse Test: Pulse width ≤ 300 μs , Duty Cycle ≤ 2.0 %
(2) $f_T = |h_{fe}| \cdot f_{TEST}$

FIG-2 DC CURRENT GAIN

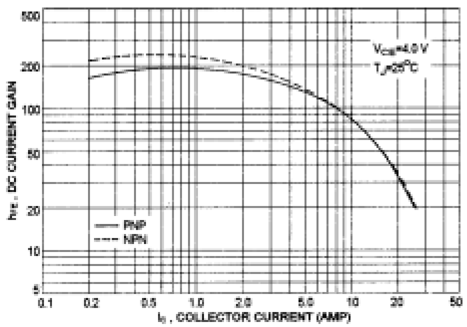


FIG-3 TURN-OFF TIME

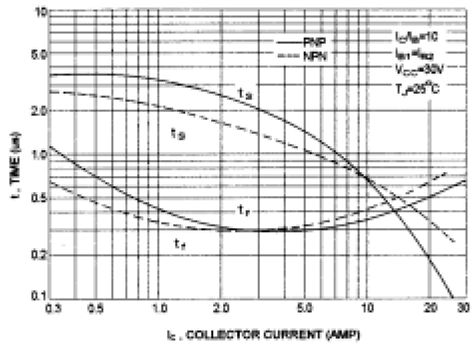


FIG-4 TURN-ON TIME

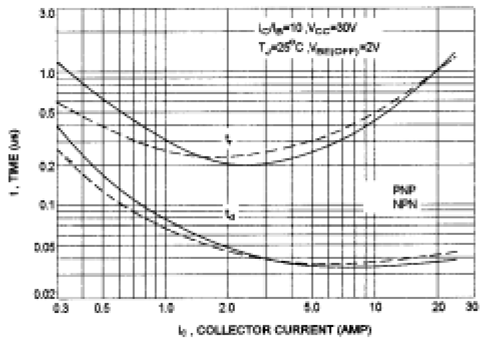


FIG-5 REVERSE BIASE SAFE OPERATING AREA

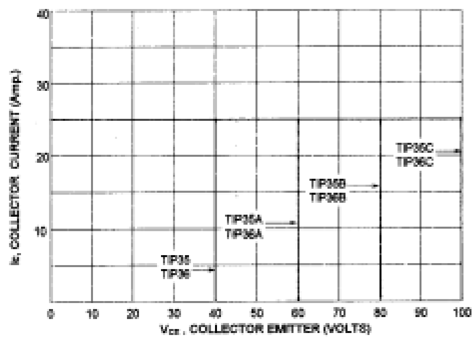
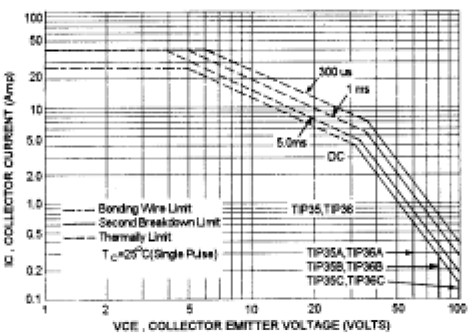


FIG-6 ACTIVE REGION SAFE OPERATING AREA



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-6 is base on T_C=25 °C;$T_{J(PK)}$ is variable depending on power level. second breakdown pulse limi -ts are valid for duty cycles to 10% but must be derated when $T_C \geq$25°C, second breakdown limitations do not der - ate the same as thermal limitation.