MOSPEC

PLASTIC MEDIUM-POWER
COPLEMENTARY SILICON TRANSISTORS

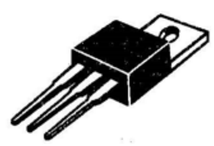
...designed for general-purpose amplifier and low speed switching applications

FEATURES:

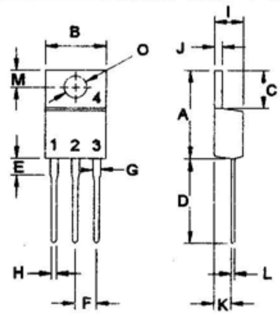
* Collector-Emitter Sustaining Voltage-
  $V_{CEO(SUS)}$ = 60 V (Min) - TIP130,TIP135
  = 80 V (Min) - TIP131,TIP136
  = 100 V (Min) - TIP132,TIP137
* Collector-Emitter Saturation Voltage
  $V_{CE(sat)}$ = 2.0V (Max.) @ I_C = 4.0 A
* Monolithic Construction with Built-in Base-Emitter Shunt Resistor

NPN	PNP
TIP130	TIP135
TIP131	TIP136
TIP132	TIP137

8.0 AMPERE
DARLINGTON
COMPLEMENTARY SILICON
POWER TRANSISTORS
60-100 VOLTS
70 WATTS



TO-220



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

DIM	MILLIMETERS	
	MIN	MAX
A	14.68	16.00
B	9.78	10.42
C	5.02	6.60
D	13.00	14.62
E	3.10	4.19
F	2.41	2.67
G	1.10	1.67
H	0.69	1.01
I	3.21	4.98
J	1.14	1.40
K	2.20	3.30
L	0.28	0.61
M	2.48	3.00
O	3.50	4.00

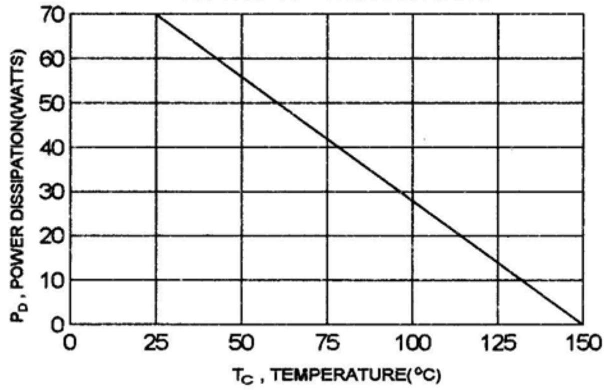
MAXIMUM RATINGS

Characteristic	Symbol	TIP130 TIP135	TIP131 TIP136	TIP132 TIP137	Unit
Collector-Emitter Voltage	V_{CEO}	60	80	100	V
COllector-Base Voltage	V_{CBO}	60	80	100	V
Emitter-Base Voltage	V_{EBO}	5.0			V
Collector Current-Continuous -Peak	I_C I_{CM}	8.0 12			A
Base Current	I_B	0.3			mA
Total Power Dissipation @T_C= 25°C Derate above 25°C	P_D	70 0.56			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	1.785	°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)	TIP130,TIP135 TIP131,TIP136 TIP132,TIP137	$V_{CEO(sus)}$	60 80 100		V
Collector Cutoff Current (V_{CE} = 30 V, I_B = 0) (V_{CE} = 40 V, I_B = 0) (V_{CE} = 50 V, I_B = 0)	TIP130,TIP135 TIP131,TIP136 TIP132,TIP137	I_{CEO}		0.5 0.5 0.5	mA
Collector Cutoff Current (V_{CB} = 60 V, I_E = 0) (V_{CB} = 80 V, I_E = 0) (V_{CB} = 100 V, I_E = 0)	TIP130,TIP135 TIP131,TIP136 TIP132,TIP137	I_{CBO}		0.2 0.2 0.2	mA
Emitter Cutoff Current (V_{EB} = 5.0 V, I_C = 0)		I_{EBO}		5.0	mA
ON CHARACTERISTICS (1)					
DC Current Gain (I_C = 1.0 A, V_{CE} = 4.0 V) (I_C = 4.0 A, V_{CE} = 4.0 V)		hFE	500 1000	 15000	
Collector-Emitter Saturation Voltage (I_C = 4.0 A, I_B = 16 mA) (I_C = 6.0 A, I_B = 30 mA)		$V_{CE(sat)}$		2.0 3.0	V
Base-Emitter On Voltage (I_C = 4.0 A, V_{CE} = 4.0 V)		$V_{BE(on)}$		2.5	V
DYNAMIC CHARACTERISTICS					
Output Capacitance (V_{CB} = 10 V, I_E = 0 , f = 0.1 MHz)		C_{ob}		250	pF

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

INTERNAL SCHEMATIC DIAGRAM

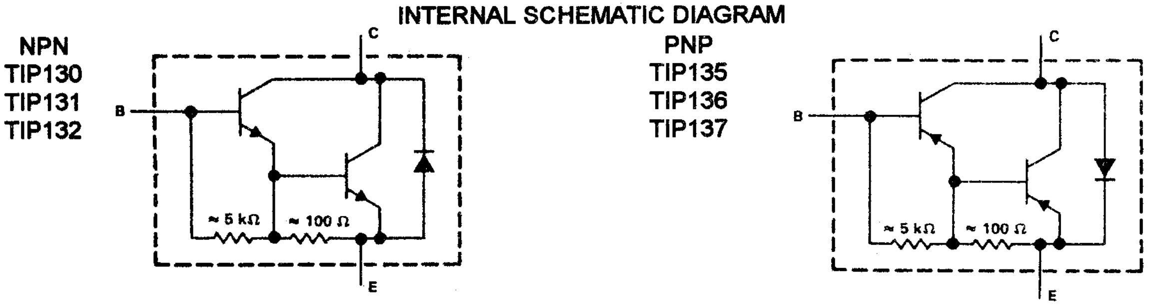


FIG-2 DC CURRENT GAIN

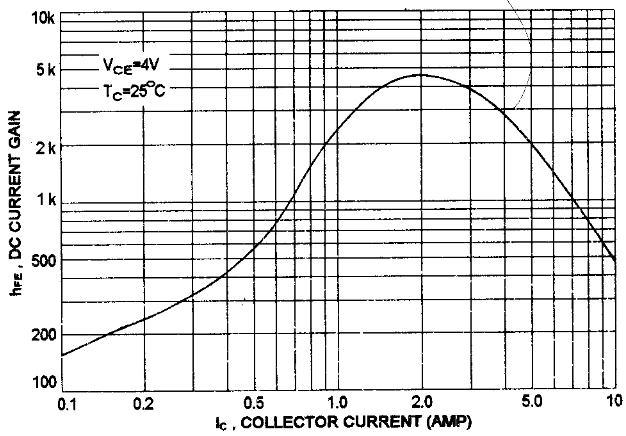


FIG-3 BAES-EMITTER VOLTAGE

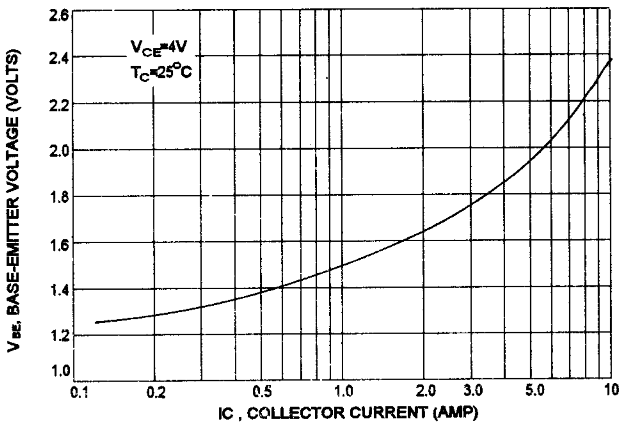


FIG-4 COLLECTOR-EMITTER SATURATION VOLTAGE

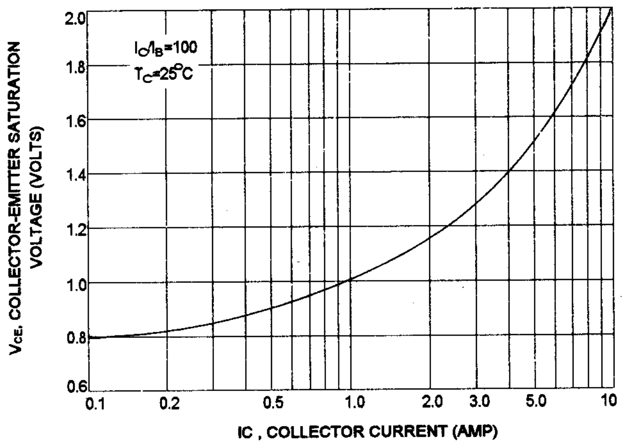


FIG-5 FORWARD VOLTAGE COMMUTATING DIODE

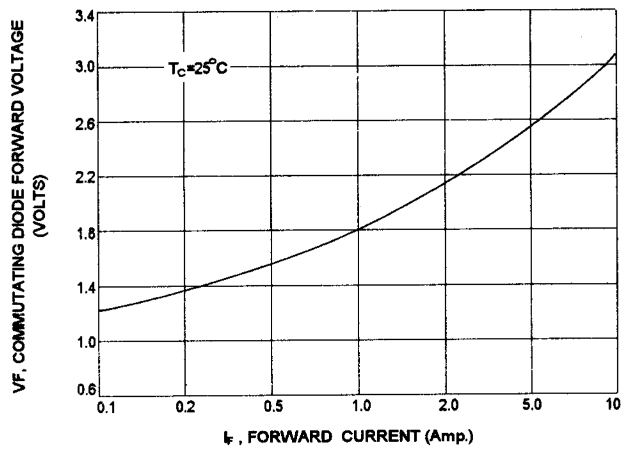
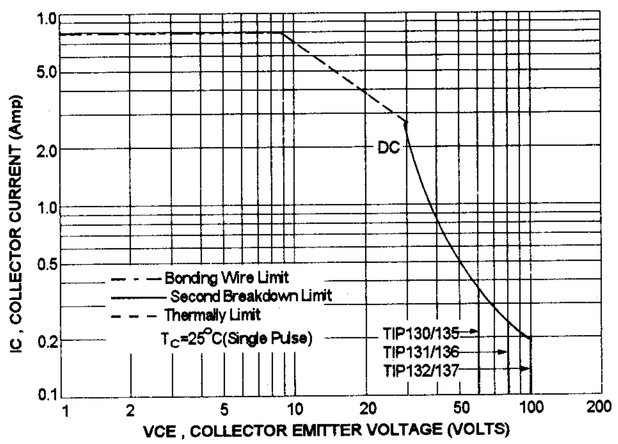


FIG-6 ACTIVE REGION SAFE OPERATING AREA



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 curve is base on $T_{J(PK)}$=150 °C; T_C is variable depending on power level. second breakdown pulse limits are valid for duty cycles to 10% provided $T_{J(PK)} \le 150$°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.

Notice

MOSPEC reserves the rights to make changes of the content herein the document anytime without notification. MOSPEC or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies. Please refer to MOSPEC website for the last document.

MOSPEC disclaims any and all liability arising out of the application or use of any product including damages incidentally and consequentially incurred.

Application shown on the herein document are examples of standard use and operation. Customers are responsible for comprehending suitable use in particular applications. MOSPEC makes no representation or warranty that such application will be suitable for the specified use without further testing or modification.

The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by MOSPEC for any infringements of patents or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of MOSPEC or others.

These MOSPEC products are intended for usage in general electronic equipment. Please make sure to consult with MOSPEC before you use these MOSPEC products in equipment which require specialized quality and/or reliability, and in equipment which could have major impact to the welfare of human life (atomic energy control, aeronautics , traffic control, combustion control, safety devices etc.)