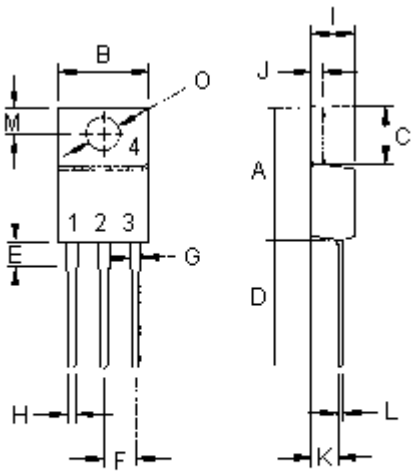
Transistor

Features:

- Collector-Emitter Sustaining Voltage
  $V_{CEC\ (SUS)}$ = 30V (Minimum)
- Collector-Emitter Saturation Voltage
  $V_{CE\ (sat)}$ = 2.0V (Maximum) at I_C = 5.0 A
- Reverse-Base SOA - 300V to 400V at 7A



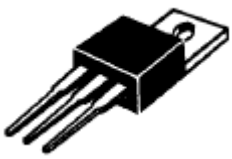
Pin 1. Base
2. Collector
3. Emitter
4. Collector (Case)

Dimensions	Minimum	Maximum
A	14.68	15.31
B	9.78	10.42
C	5.01	8.52
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	3.7	3.90

Dimensions : Millimetres

NPN
TIP150

7 Ampere
Darington
Power Transistors
300-400 Volts
80 Watts



TO-220

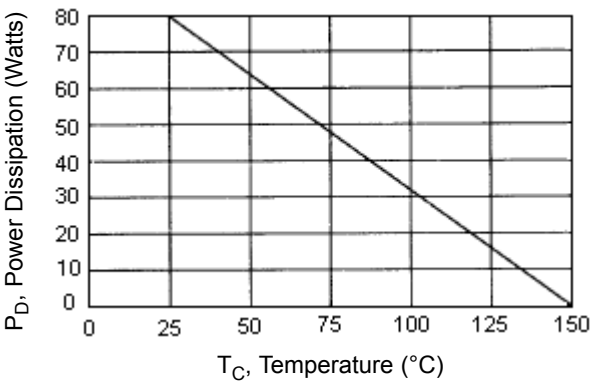
Maximum Ratings

Characteristic	Symbol	TIP150	Unit
Collector-Emitter Voltage	V_{CEO}	300	V
Collector-Base Voltage	V_{CBO}		
Emitter-Base Voltage	V_{EBO}	8.0	
Collector Current-Continuous -Peak	I_C I_{CM}	7.0 10	A
Base Current	I_B	1.5	
Total Power Dissipation at T_C = 25°C Derate above 25°C	P_D	80 0.64	W W/°C
Operating and Storage Junction Temperature Range	T_J, T_{STG}	-65 to +150	°C

Thermal Characteristics

Characteristic	Symbol	Maximum	Unit
Thermal Resistance Junction to Case	Rθjc	1.56	°C/W

Power Derating

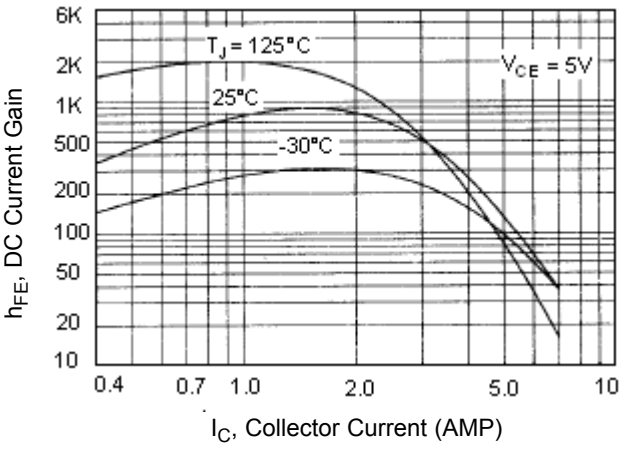


Electrical characteristics (T_C = 25°C unless otherwise noted)

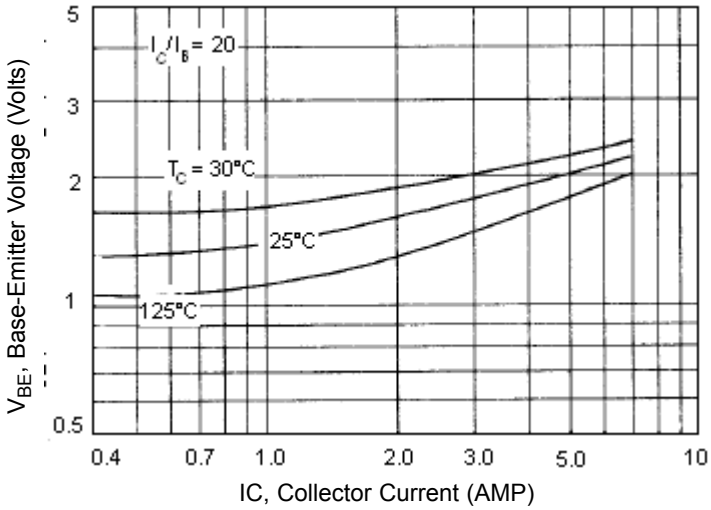
Characteristic		Symbol	Minimum	Maximum	Unit
OFF Characteristics					
Collector - Emitter Breakdown Voltage (1) (I_C = 10mA, I_B = 0)	TIP150	$V_{(BR)\ CEO}$	300	-	V
Collector - Base Breakdown Voltage (1) (I_C = 1.0mA, I_B = 0)	TIP150	$V_{(BR)\ CBO}$		-	
Collector Cutoff Current (V_{CE} = 300 V, I_B = 0)	TIP150	I_{CEO}	-	250	uA
Emitter Cutoff Current (V_{EB} = 8.0V,I_c = 0)		I_{EBO}	-	15	mA
ON Characteristics (1)					
DC Current Gain (I_c = 2.5A,V_{CE} = 5.0V) (I_c = 5.0A,V_{CE} = 5.0V) (I_c = 7.0A,V_{CE} = 5.0V)		hFE	150 50 15	-	-
Collector-Emitter Saturation Voltage (I_c = 1.0A, I_B = 10mA) (I_c = 2.0A, I_B = 100mA) (I_c = 5.0A, I_B = 250mA)		$V_{CE\ (sat)}$	-	1.5 1.5 2.0	V
Base-Emitter Saturation Voltage (I_c = 2.0A, I_B = 100mA) (I_c = 5.0A, I_B = 250mA)		$V_{BE\ (sat)}$	-	2.2 2.3	
Diode Forward Voltage (I_F = 7.0A)		V_F	-	3.5	
Dynamic Characteristics					
Small-Signal Current Gain (I_c = 0.5 A, V_{CE} = 5.0 V, f = 1.0KHz)		h_{fe}	200	-	-
Output Capacitance (V_{CB} = 10 V, I_E = 0 , f = 1.0MHz)		C_{ob}	-	150	PF
Switching Characteristics					
Delay Time	V_{cc} = 250V, I_c = 5.0A	t_d	30 (typical)	-	ns
Rise Time	I_{B1} = -I_{B2} = 250 mA, tp = 20us,Duty Cycle ≤2.0%	t_r	180 (typical)	-	
Storage Time		t_s	3.5 (typical)	-	us
Fall Time		t_f	1.6 (typical)	-	

(1) Pulse Test : Pluse Width = 30μs, Duty Cycle ≤2.0%.

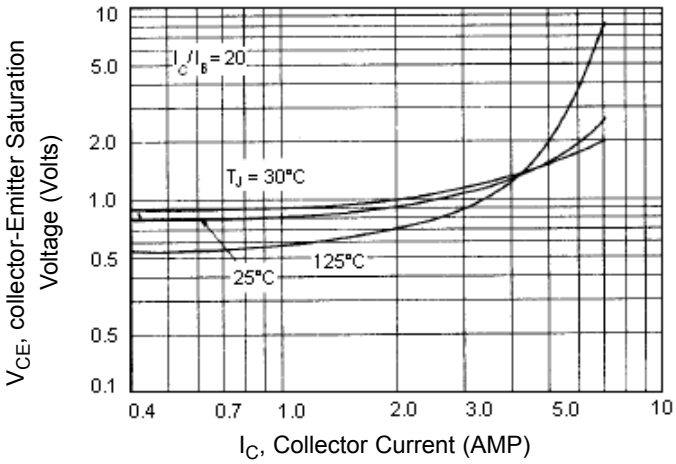
DC Current Gain



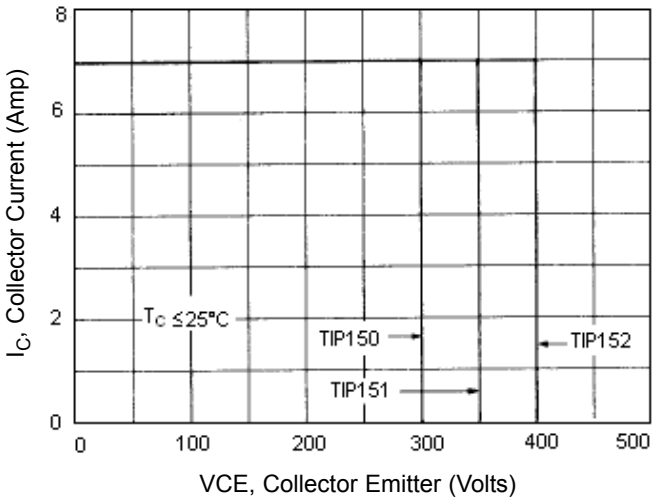
Baes-Emitter Voltage



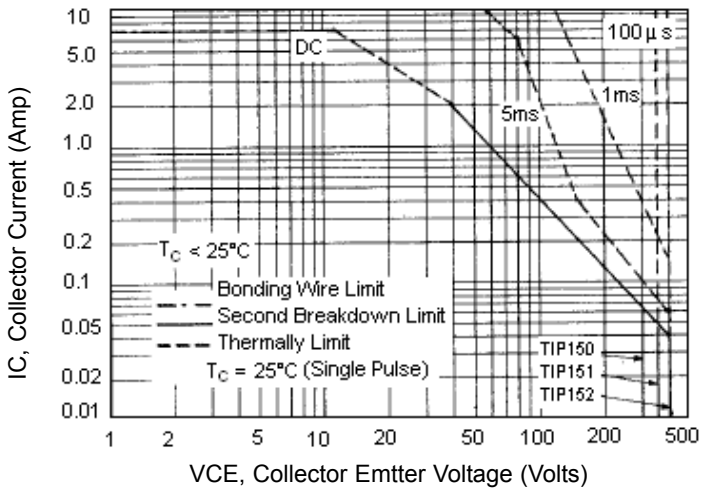
Collector-Emitter Saturation Voltage



Reverse Biase Safe Operating Area



Active Region Sage Operating Area



There are two limitation on the power handling ability of a transistoraverage junction temperature and second breakdown safe operating area curves indicate IC-VCE: 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 TJ,PK)=150OC; TC is variable depending on power level, second breakdown pulse limits are valid for duty cycles to 10% provided TJ(PK) <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.

Part Number Table

Description	Part Number
Transistor, Darlingtion TO-220	100310

Notes:

International Sales Offices:

AUSTRALIA – Farnell
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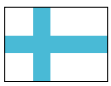
Fax No: ++61 1300 361 225



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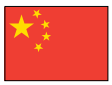

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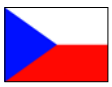

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