

T-33-31



Darlington Silicon PNP Power Transistors

TO-220 Package

Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	TIP115	TIP116	TIP117	Unit
Collector-Base Voltage	-V _{CB0}	60	80	100	V
Collector-Emitter Voltage	-V _{CEO}	60	80	100	V
Emitter-Base Voltage	-V _{EB0}	5			V
Collector Current	-I _C	2			A
Peak Collector Current	-I _{CM}	4			A
Base Current	-I _B	50			mA
Power Dissipation (T _C =25°C)	P _C	50			W
Junction Temperature	T _J	-65~+150			°C
Storage Temperature	T _{stg}	-65~+150			°C

Applications:

- Power Amplifier and High Speed Switching
- Complementary pair with TIP110, TIP111, TIP112

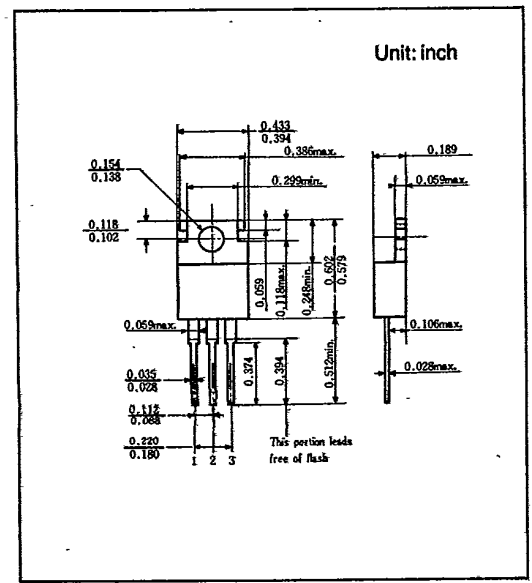
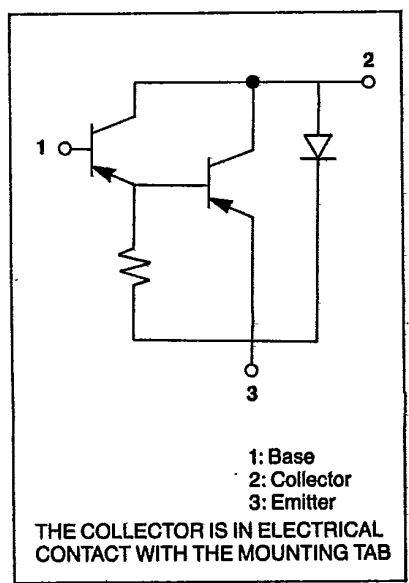
Features:

- 50W at 25°C case temperature
- Min. h_{FE} of 500 at 4V, 2A
- 2A rated collector current
- 25mJ reverse energy rating

Electrical Characteristics (Ta=25°C)

Item	Symbol	Condition	TIP115		TIP116		TIP117		Unit
			min.	max.	min.	max.	min.	max.	
Collector-Emitter Voltage	-V _{CEO}	-I _C =30mA, I _B =0	60		80		100		V
Collector Cutoff Current	-I _{CEO}	-V _{CE} =30V, I _B =0	2						mA
		-V _{CE} =40V, I _B =0			2				
		-V _{CE} =60V, I _B =0					2		
Collector-Base Current	-I _{CBO}	-V _{CB} =60V, I _E =0	1						mA
		-V _{CB} =80V, I _E =0			1				
		-V _{CB} =100V, I _E =0					1		
Emitter-Base Current	-I _{EB0}	-V _{EB} =5V, I _C =0	2		2		2		mA
		-V _{CE} =4V, -I _C =1A	1000		1000		1000		
DC Current Gain	h _{FE}	-V _{CE} =4V, -I _C =2A	500		500		500		
Base-Emitter Voltage	-V _{BE}	-V _{CE} =4V, -I _C =2A	2.8		2.8		2.8		V
Collector-Emitter Saturation Voltage	-V _{CE(sat)}	-I _C =2A, -I _B =8mA	2.5		2.5		2.5		V
Turn-on Time	t _{on}	-I _C =2A, -I _{B1} =8mA, I _{B2} =8mA	0.2 (typ.)						μs
Turn-off Time	t _{off}	V _{BE(off)} =5V, R _L =15Ω	2 (typ.)						

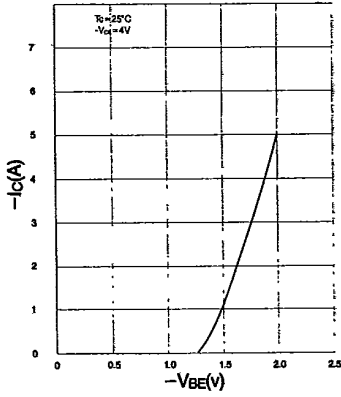
The device specifications are subject to change without prior notice.



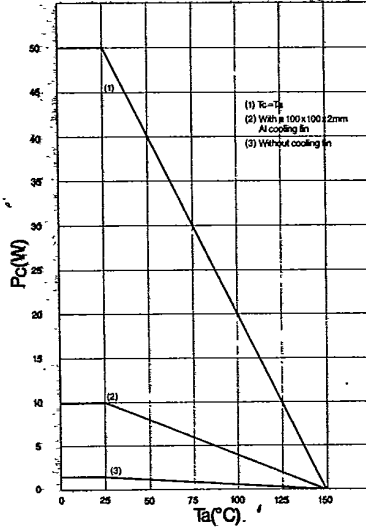


Typical Characteristics

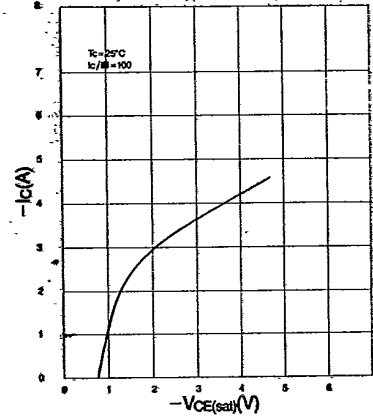
V_{BE} vs. I_C characteristics



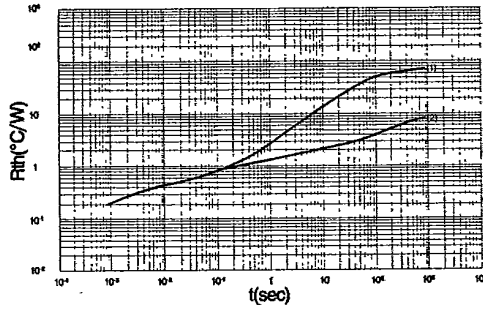
P_C vs. T_a characteristics



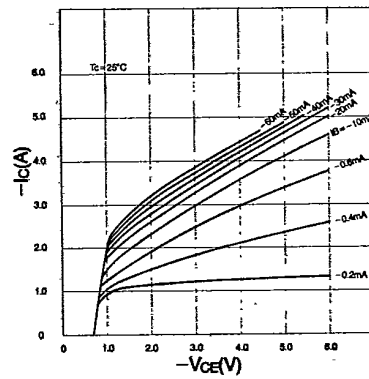
$V_{CE(sat)}$ vs. I_C characteristics



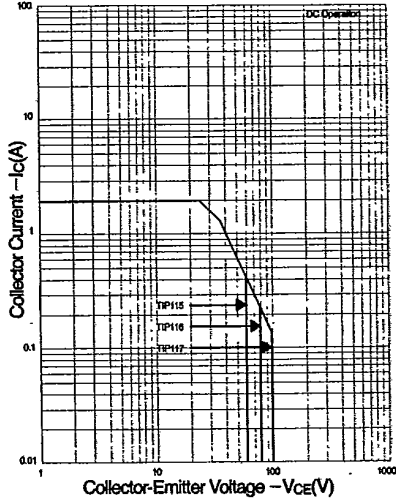
Thermal Resistance vs. t



V_{CE} vs. I_C characteristics



Area of Safe Operation (ASO) ($T_c=25^\circ\text{C}$)



h_{FE} vs I_C characteristics

