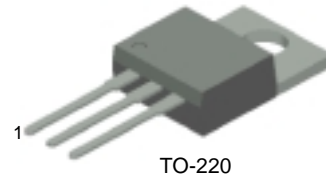


TIP140T/141T/142T

Monolithic Construction With Built In Base-Emitter Shunt Resistors

- High DC Current Gain : $h_{FE} = 1000$ @ $V_{CE} = 4V$, $I_C = 5A$ (Min.)
- Industrial Use
- Complement to TIP145T/146T/147T



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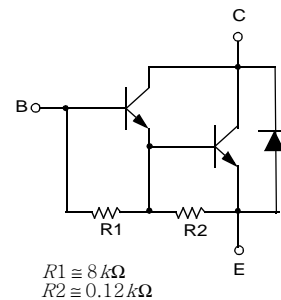
1.Base 2.Collector 3.Emmitter

NPN Epitaxial Silicon Darlington Transistor

Absolute Maximum Ratings $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage : TIP140T	60	V
	: TIP141T	80	V
	: TIP142T	100	V
V_{CEO}	Collector-Emitter Voltage : TIP140T	60	V
	: TIP141T	80	V
	: TIP142T	100	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current (DC)	10	A
I_{CP}	Collector Current (Pulse)	15	A
I_B	Base Current (DC)	0.5	A
P_C	Collector Dissipation ($T_C=5^\circ\text{C}$)	80	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{STG}	Storage Temperature	- 65 ~ 150	$^\circ\text{C}$

Equivalent Circuit

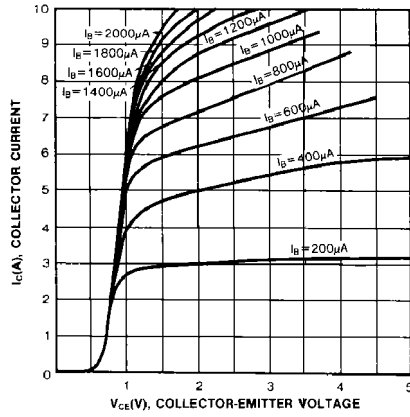


Electrical Characteristics $T_C=25^\circ\text{C}$ unless otherwise noted

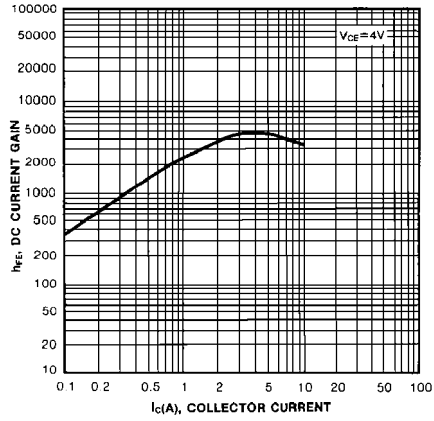
Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units			
$V_{CEO(sus)}$	Collector-Emitter Sustaining Voltage	$I_C = 30\text{mA}$, $I_B = 0$	60			V			
						: TIP140T	80	V	
						: TIP141T	100	V	
						: TIP142T			
I_{CEO}	Collector Cut-off Current	$V_{CE} = 30V$, $I_B = 0$			2	mA			
						: TIP140T	$V_{CE} = 40V$, $I_B = 0$	2	mA
						: TIP141T	$V_{CE} = 50V$, $I_B = 0$	2	mA
						: TIP142T			
I_{CBO}	Collector Cut-off Current	$V_{CB} = 60V$, $I_E = 0$			1	mA			
						: TIP140T	$V_{CB} = 80V$, $I_E = 0$	1	mA
						: TIP141T	$V_{CB} = 100V$, $I_E = 0$	1	mA
						: TIP142T			
I_{EBO}	Emitter Cut-off Current	$V_{BE} = 5V$, $I_C = 0$			2	mA			
h_{FE}	DC Current Gain	$V_{CE} = 4V$, $I_C = 5A$ $V_{CE} = 4V$, $I_C = 10A$	1000 500			mA			
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 5A$, $I_B = 10\text{mA}$ $I_C = 10A$, $I_B = 40\text{mA}$			2 3	V V			
						$I_C = 10A$, $I_B = 40\text{mA}$	3.5	V	
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = 10A$, $I_B = 40\text{mA}$			3.5	V			
$V_{BE(on)}$	Base-Emitter ON Voltage	$V_{CE} = 4V$, $I_C = 10A$			3	V			
t_D	Delay Time	$V_{CC} = 30V$, $I_C = 5A$ $I_{B1} = 20\text{mA}$ $I_{B2} = -20\text{mA}$ $R_L = 6\Omega$		0.15		μs			
t_R	Rise Time					0.55	μs		
t_{STG}	Storage Time					2.5	μs		
t_F	Fall Time					2.5	μs		

Typical Characteristics

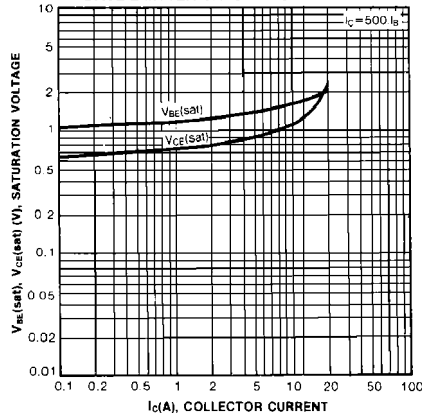
STATIC CHARACTERISTIC



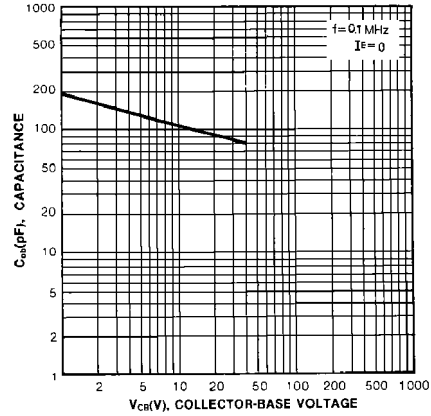
DC CURRENT GAIN



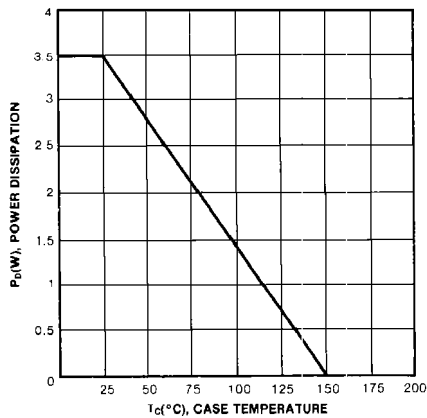
COLLECTOR-EMITTER SATURATION VOLTAGE
BASE-EMITTER SATURATION VOLTAGE



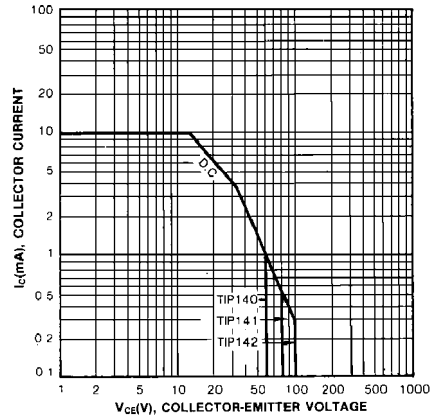
COLLECTOR OUTPUT CAPACITANCE



POWER DERATING

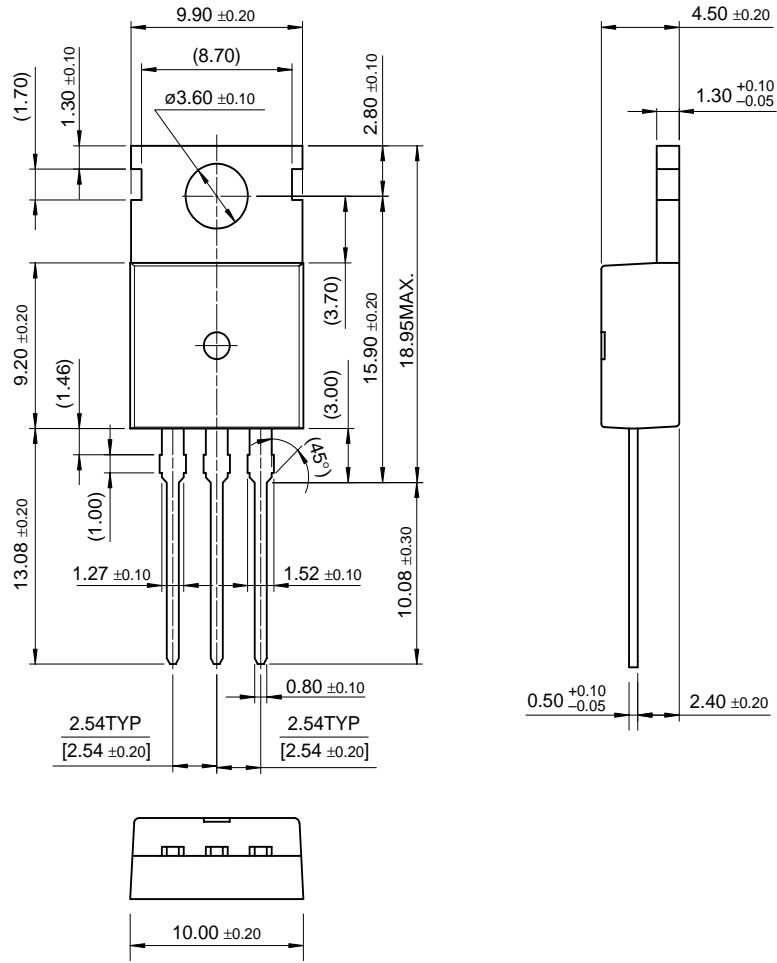


SAFE OPERATING AREA



Package Dimensions

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TIP140T/141T/142T

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FACT™	QFET™	
FACT Quiet Series™	QS™	
FAST®	Quiet Series™	
FASTr™	SuperSOT™-3	
GTO™	SuperSOT™-6	
HiSeC™	SuperSOT™-8	

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