

TIP140T/141T/142T

NPN EPITAXIAL SILICON DARLINGTON TRANSISTOR

HIGH DC CURRENT GAIN - MIN hFE = 1000

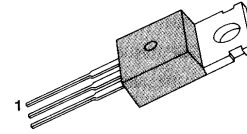
@ $V_{CE} = 4V, I_C = 5A$

MONOLITHIC CONSTRUCTION IN BASE-EMITTER

SHUNT RESISTORS INDUSTRIAL USE

Complement to TIP145T/146T/147T

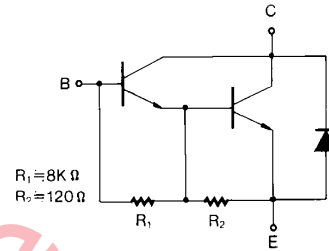
TO-220



1. Base 2. Collector 3. Emitter

ABSOLUTE MAXIMUM RATINGS

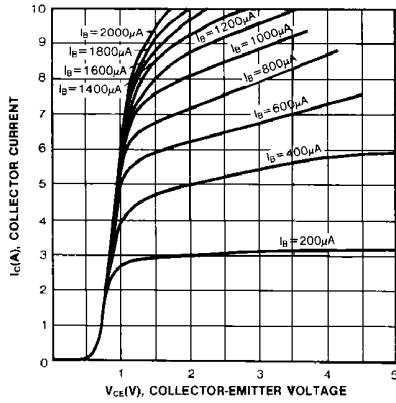
Characteristic	Symbol	Rating	Unit
Collector-Base Voltage : TIP140T	V_{CBO}	60	V
: TIP141T		80	V
: TIP142T		100	V
Collector-Emitter Voltage			
: TIP140T	V_{CEO}	60	V
: TIP141T		80	V
: TIP142T		100	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current (DC)	I_C	10	A
Collector Current (Pulse)	I_C	15	A
Base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



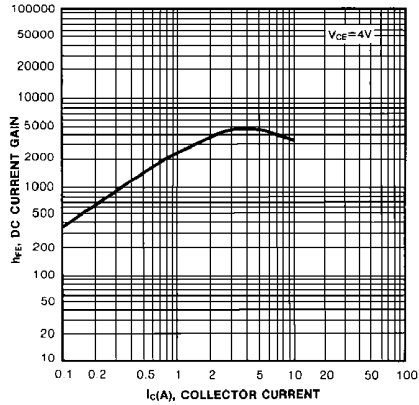
ELECTRICAL CHARACTERISTICS ($T_C=25^\circ C$)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Emitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C = 30mA, I_B = 0$	60			V
: TIP140T			80			V
: TIP141T			100			V
Collector Cutoff Current	I_{CEO}	$V_{CE} = 30V, I_B = 0$			2	mA
: TIP140T		$V_{CE} = 40V, I_B = 0$			2	mA
: TIP141T		$V_{CE} = 50V, I_B = 0$			2	mA
Collector Cutoff Current	I_{CBO}	$V_{CB} = 60V, I_E = 0$			1	mA
: TIP140T		$V_{CB} = 80V, I_E = 0$			1	mA
: TIP141T		$V_{CB} = 100V, I_E = 0$			1	mA
Emitter Cutoff Current	I_{EBO}	$V_{BE} = 5V, I_C = 0$			2	mA
DC Current Gain	h_{FE}	$V_{CE} = 4V, I_C = 5A$	1000			mA
		$V_{CE} = 4V, I_C = 10A$	500		2	
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 5A, I_B = 10mA$			3	V
		$I_C = 10A, I_B = 40mA$			3.5	V
Base Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 10A, I_B = 40mA$			3	V
Base Emitter On Voltage	$V_{BE(on)}$	$V_{CE} = 4V, I_C = 10A$				V
Delay Time	t_D	$V_{CC} = 30V, I_C = 5A$		0.15		μS
Rise Time	t_R	$I_B = 20mA, I_{B1} = I_{B2}$		0.55		μS
Storage Time	t_S			2.5		μS
Fall Time	t_F			2.5		μS

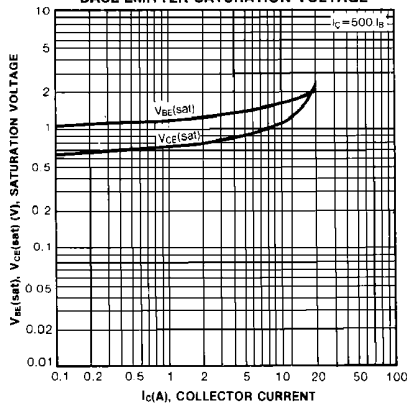
STATIC CHARACTERISTIC



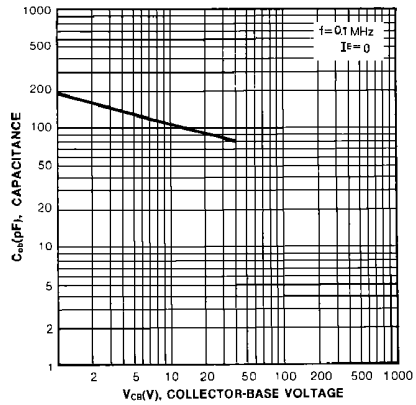
DC CURRENT GAIN



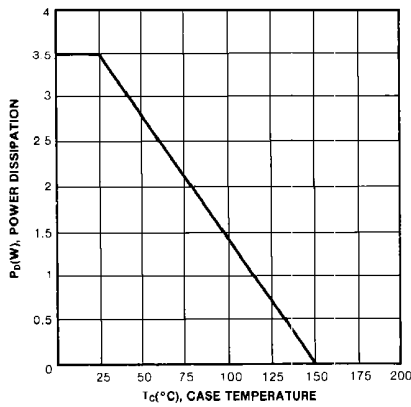
COLLECTOR-EMITTER SATURATION VOLTAGE
BASE-EMITTER SATURATION VOLTAGE



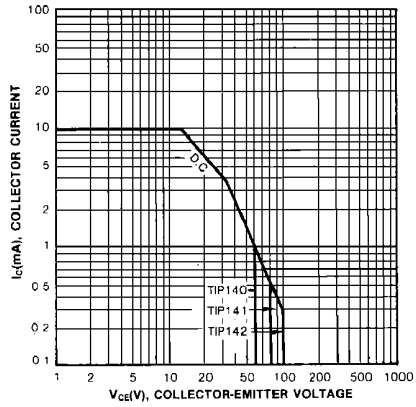
COLLECTOR OUTPUT CAPACITANCE



POWER DERATING



SAFE OPERATING AREA



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