

# TIP140T/141T/142T

# NPN EPITAXIAL SILICON DARLINGTON TRANSISTOR

## HIGH DC CURRENT GAIN - MIN $hFE = 1000$

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

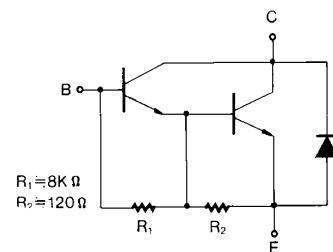
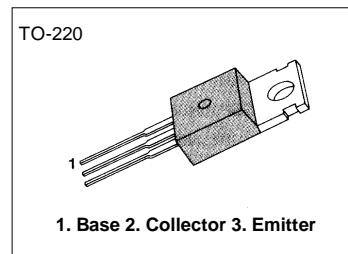
MONOLITHIC CONSTRUCTION IN BASE-EMITTER

SHUNT RESISTORS INDUSTRIAL USE

Complement to TIP145T/146T/147T

## ABSOLUTE MAXIMUM RATINGS

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage : TIP140T : TIP141T : TIP142T	$V_{CBO}$	60	V
		80	V
		100	V
Collector-Emitter Voltage : TIP140T : TIP141T : TIP142T	$V_{CEO}$	60	V
		80	V
		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	$^\circ C$



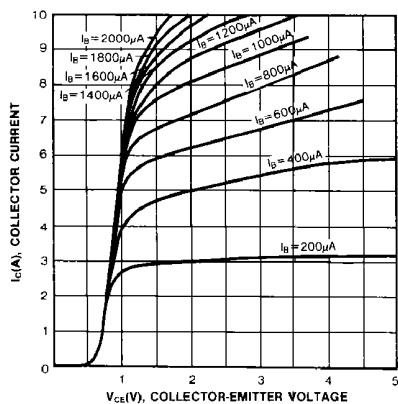
## ELECTRICAL CHARACTERISTICS ( $T_C = 25^\circ C$ )

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Emitter Sustaining Voltage : TIP140T : TIP141T : TIP142T	$V_{CEO(sus)}$	$I_C = 30mA, I_B = 0$	60			V
			80			V
			100			V
Collector Cutoff Current : TIP140T : TIP141T : TIP142T	$I_{CEO}$	$V_{CE} = 30V, I_B = 0$		2		mA
		$V_{CE} = 40V, I_B = 0$		2		mA
		$V_{CE} = 50V, I_B = 0$		2		mA
Collector Cutoff Current : TIP140T : TIP141T : TIP142T	$I_{CBO}$	$V_{CB} = 60V, I_E = 0$		1		mA
		$V_{CB} = 80V, I_E = 0$		1		mA
		$V_{CB} = 100V, I_E = 0$		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
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$V_{CE} = 4V, I_C = 10A$	500	2		V
		$I_C = 5A, I_B = 10mA$		3		V
Base Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 10A, I_B = 40mA$		3.5		V
		$I_C = 10A, I_B = 40mA$		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		uS
Rise Time	$t_R$	$I_B = 20mA, I_{B1} = I_{B2}$		0.55		uS
Storage Time	$t_S$			2.5		uS
Fall Time	$t_F$			2.5		uS

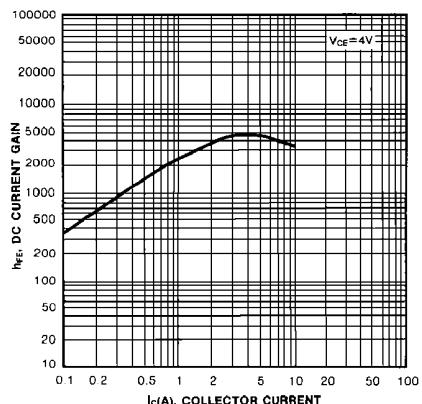
TIP140T/141T/142T

NPN EPITAXIAL SILICON  
DARLINGTON TRANSISTOR

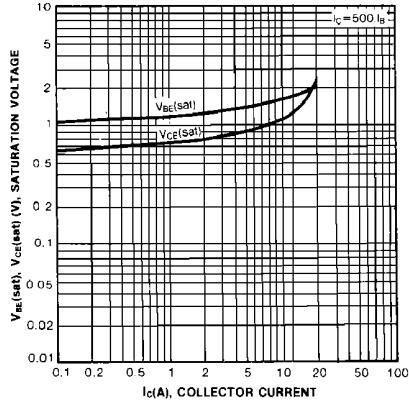
STATIC CHARACTERISTIC



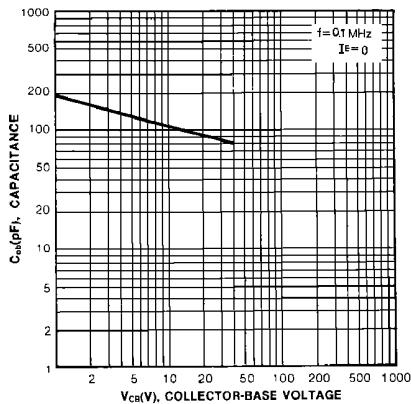
DC CURRENT GAIN



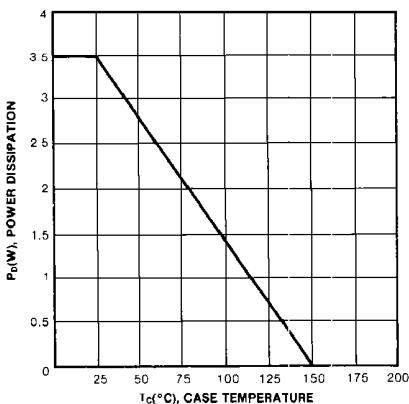
COLLECTOR-EMITTER SATURATION VOLTAGE  
BASE-EMITTER SATURATION VOLTAGE



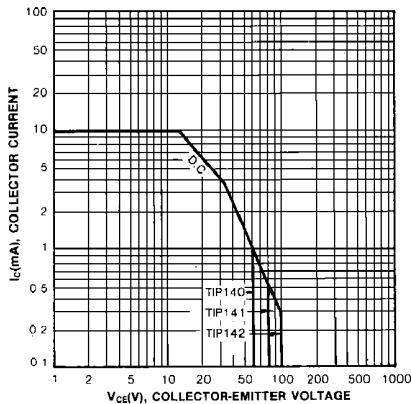
COLLECTOR OUTPUT CAPACITANCE



POWER DERATING



SAFE OPERATING AREA



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