

# TIP140F/141F/142F

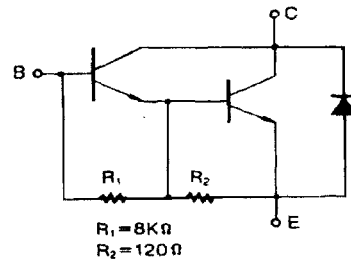
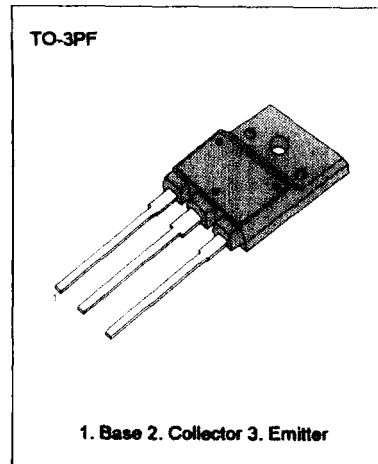
# NPN EPITAXIAL DARLINGTON TRANSISTOR

**HIGH DC CURRENT GAIN**  
**MIN  $h_{FE} = 1000$  @  $V_{CE} = -4V$ ,  $I_C = -5A$**   
**MONOLITHIC CONSTRUCTION WITH BUILT  
 IN BASE-EMITTER SHUNT RESISTORS**  
**INDUSTRIAL USE**

Complement to TIP145F/146F/147F

## 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 ( $T_C=5^\circ C$ )		$P_C$	60	W
Junction Temperature		$T_J$	150	$^\circ C$
Storage Temperature		$T_{STG}$	-65 ~ 150	$^\circ C$

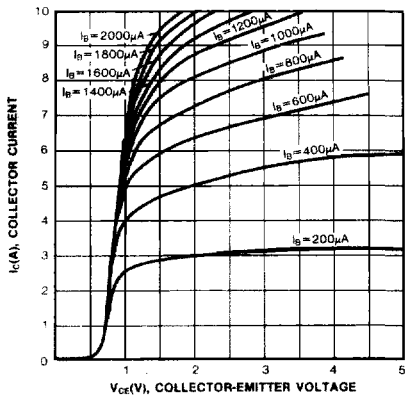


## ELECTRICAL CHARACTERISTICS ( $T_C=25^\circ C$ )

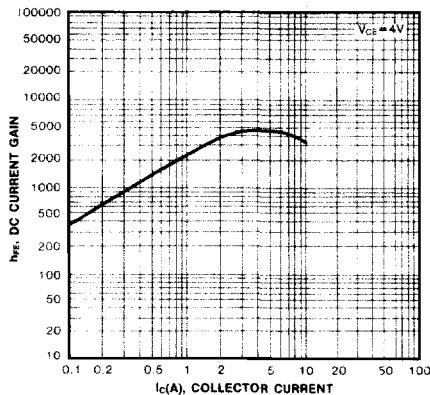
Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Emitter Sustaining Voltage	$V_{CEO(SUS)}$	$I_C = 30mA, I_B = 0$	60			V
			80			V
			100			V
Collector Cutoff Current	$I_{CEO}$	$V_{CE} = 30V, I_B = 0$			2	mA
					2	mA
					2	mA
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = 60V, I_E = 0$			1	mA
					1	mA
					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			
			500			
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 5A, I_B = 10mA$			2	V
					3	V
Base Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 10A, I_B = 40mA$			3.5	V
Base Emitter On Voltage	$V_{BE(on)}$	$V_{CE} = 4V, I_C = 10A$			3	V
Delay Time	$t_D$	$V_{CC} = 30V, I_C = 5A$		0.15		$\mu S$
Rise Time	$t_R$	$I_B = 20mA, I_{B1} = I_{B2}$		0.55		$\mu S$
Storage Time	$t_{STG}$			2.5		$\mu S$
Fall Time	$t_F$			2.5		$\mu S$



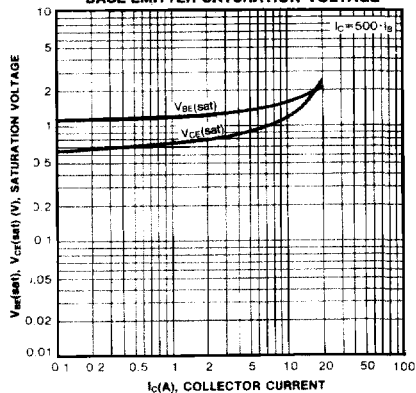
STATIC CHARACTERISTIC



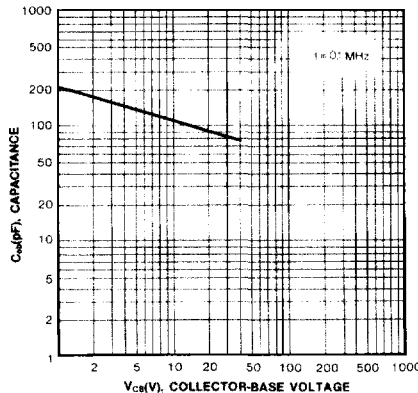
DC CURRENT GAIN



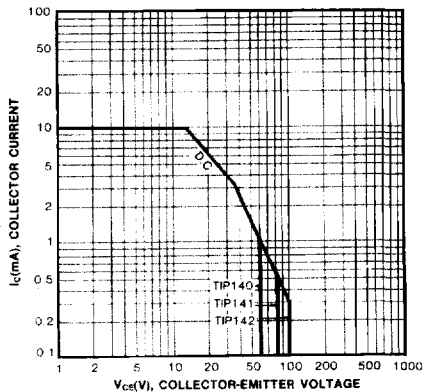
COLLECTOR-EMITTER SATURATION VOLTAGE  
BASE-EMITTER SATURATION VOLTAGE



COLLECTOR OUTPUT CAPACITANCE



SAFE OPERATING AREA



POWER DERATING

