

CentralTM Semiconductor Corp.

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Manufacturers of World Class Discrete Semiconductors

TIP140T TIP141T TIP142T NPN
TIP145T TIP146T TIP147T PNP

SILICON POWER
DARLINGTON TRANSISTORS

JEDEC TO-220 CASE

DESCRIPTION

The CENTRAL SEMICONDUCTOR TIP140T, TIP145T series types are complementary silicon power darlington transistors manufactured by the epitaxial base process, designed for general purpose amplifier and low speed switching applications where high gain (h_{FE}) is required.

MAXIMUM RATINGS ($T_C=25^\circ\text{C}$)

	SYMBOL	TIP140T TIP145T	TIP141T TIP146T	TIP142T TIP147T	UNIT
Collector-Base Voltage	V_{CB0}	60	80	100	V
Collector-Emitter Voltage	V_{CE0}	60	80	100	V
Emitter-Base Voltage	V_{EB0}	5.0	5.0	5.0	V
Collector Current	I_C	10	10	10	A
Collector Current (Peak)	I_{CM}	15	15	15	A
Base Current	I_B	0.5	0.5	0.5	A
Power Dissipation	P_D	80	80	80	W
Operating and Storage Junction Temperature	T_J, T_{stg}		-65 to +150		$^\circ\text{C}$
Thermal Resistance	θ_{JC}	1.56	1.56	1.56	$^\circ\text{C/W}$

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

SYMBOL	TEST CONDITIONS	TIP140T TIP145T		TIP141T TIP146T		TIP142T TIP147T		UNIT
		MIN	MAX	MIN	MAX	MIN	MAX	
I_{CB0}	$V_{CB}=\text{Rated } V_{CB0}$		1.0		1.0		1.0	mA
I_{CE0}	$V_{CE}=\frac{1}{2} \text{ Rated } V_{CE0}$		2.0		2.0		2.0	mA
I_{EB0}	$V_{BE}=5.0\text{V}$		2.0		2.0		2.0	mA
BV_{CE0}	$I_C=30\text{mA}$	60		80		100		V
$V_{CE(\text{SAT})}$	$I_C=5.0\text{A}, I_B=10\text{mA}$		2.0		2.0		2.0	V
$V_{CE(\text{SAT})}$	$I_C=10\text{A}, I_B=40\text{mA}$		3.0		3.0		3.0	V
$V_{BE(\text{SAT})}$	$I_C=10\text{A}, I_B=40\text{mA}$		3.5		3.5		3.5	V
$V_{BE(\text{ON})}$	$V_{CE}=4.0\text{V}, I_C=10\text{A}$		3.0		3.0		3.0	V
h_{FE}	$V_{CE}=4.0\text{V}, I_C=5.0\text{A}$	1000		1000		1000		
h_{FE}	$V_{CE}=4.0\text{V}, I_C=10\text{A}$	500		500		500		
t_{ON}	$V_{CC}=30\text{V}, I_C=5.0\text{A}, I_B=20\text{mA}, I_{B1}=I_{B2}$		0.7 TYP		0.7 TYP		0.7 TYP	μs
t_{OFF}	$V_{CC}=30\text{V}, I_C=5.0\text{A}, I_B=20\text{mA}, I_{B1}=I_{B2}$		5.0 TYP		5.0 TYP		5.0 TYP	μs