

CentralTM Semiconductor Corp.

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Manufacturers of World Class Discrete Semiconductors

TIP100 TIP101 TIP102 NPN
TIP105 TIP106 TIP107 PNPSILICON POWER DARLINGTON
COMPLEMENTARY TRANSISTORS

JEDEC TO-220AB CASE

DESCRIPTION

The CENTRAL SEMICONDUCTOR TIP100, TIP105 Series are Complementary Silicon Power Darlington Transistors designed for low speed switching and power amplifier applications

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

	SYMBOL	TIP100 TIP105	TIP101 TIP106	TIP102 TIP107	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	8.0	8.0	8.0	A
Collector Current (Peak)	I_{CM}	15	15	15	A
Base Current	I_B	1.0	1.0	1.0	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	TIP100 TIP105		TIP101 TIP106		TIP102 TIP107		UNIT
		MIN	MAX	MIN	MAX	MIN	MAX	
I_{CB0}	$V_{CB}=\text{Rated } V_{CB0}$		50		50		50	μA
I_{CE0}	$V_{CE}=\frac{1}{2} \text{ Rated } V_{CE0}$		50		50		50	μA
I_{EB0}	$V_{BE}=5.0\text{V}$		8.0		8.0		8.0	mA
BV_{CE0}	$I_C=30\text{mA}$	60		80		100		V
$V_{CE}(\text{SAT})$	$I_C=3.0\text{A}, I_B=6.0\text{mA}$		2.0		2.0		2.0	V
$V_{CE}(\text{SAT})$	$I_C=8.0\text{A}, I_B=80\text{mA}$		2.5		2.5		2.5	V
$V_{BE}(\text{ON})$	$V_{CE}=4.0\text{V}, I_C=8.0\text{mA}$		2.8		2.8		2.8	V
h_{FE}	$V_{CE}=4.0\text{V}, I_C=3.0\text{A}$	1,000	20,000	1,000	20,000	1,000	20,000	
h_{FE}	$V_{CE}=4.0\text{V}, I_C=8.0\text{A}$	200	---	200	---	200	---	
f_T	$V_{CE}=4.0\text{V}, I_C=3.0\text{A}, f=1.0\text{MHz}$	4.0		4.0		4.0		MHz
				<u>MIN</u>		<u>MAX</u>		
C_{ob}	$V_{CB}=10\text{V}, I_E=0, f=0.1\text{MHz}$ (TIP100, TIP101, TIP102 ONLY)					200		pF
C_{ob}	$V_{CB}=10\text{V}, I_E=0, f=0.1\text{MHz}$ (TIP105, TIP106, TIP107 ONLY)					300		pF