

# Central<sup>TM</sup> Semiconductor Corp.

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Manufacturers of World Class Discrete Semiconductors

TIP100 TIP101 TIP102 NPN  
TIP105 TIP106 TIP107 PNP

SILICON 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	$\theta_{JC}$	1.56	1.56	1.56	$^{\circ}\text{C}/\text{W}$

## 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	$\mu\text{A}$
$I_{CE0}$	$V_{CE}=\frac{1}{2} \text{ Rated } V_{CE0}$		50		50		50	$\mu\text{A}$
$I_{EB0}$	$V_{BE}=5.0\text{V}$		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