

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

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Manufacturers of World Class Discrete Semiconductors

MPSA12  
MPSA13  
MPSA14  
NPN SILICON DARLINGTON TRANSISTOR  
JEDEC TO-92 CASE (EBC)

## DESCRIPTION

The CENTRAL SEMICONDUCTOR MPSA12 Series types are epoxy molded Silicon NPN Epitaxial Planar Darlington Transistors designed for applications requiring extremely high gain.

## MAXIMUM RATINGS ( $T_A=25^\circ\text{C}$ unless otherwise noted)

	SYMBOL	MPSA12	MPSA13	MPSA14	UNIT
Collector Base Voltage	$V_{CB0}$	-	30	30	V
Collector Emitter Voltage	$V_{CES}$	20	30	30	V
Emitter Base Voltage	$V_{EBO}$	10	10	10	V
Collector Current	$I_C$		500		mA
Power Dissipation	$P_D$		625		mW
Power Dissipation ( $T_C=25^\circ\text{C}$ )	$P_D$		1.5		W
Operating and Storage Junction Temperature	$T_J, T_{stg}$		-65 TO +150		$^\circ\text{C}$
Thermal Resistance	$\theta_{JA}$		0.2		$^\circ\text{C}/\text{mW}$
Thermal Resistance	$\theta_{JC}$		83.3		$^\circ\text{C}/\text{W}$

## ELECTRICAL CHARACTERISTICS ( $T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	MPSA12		MPSA13		MPSA14		UNIT
		MIN	MAX	MIN	MAX	MIN	MAX	
$I_{CB0}$	$V_{CB}=15\text{V}$		100		-		-	nA
$I_{CB0}$	$V_{CB}=30\text{V}$		-		100		100	nA
$I_{CES}$	$V_{CE}=15\text{V}$		100		-		-	nA
$I_{EBO}$	$V_{EB}=10\text{V}$		100		100		100	nA
$BV_{CES}$	$I_C=100\mu\text{A}$	20		30		30		V
$V_{CE(SAT)}$	$I_C=10\text{mA}, I_B=10\mu\text{A}$		1.0		-		-	V
$V_{CE(SAT)}$	$I_C=100\text{mA}, I_B=100\mu\text{A}$		-		1.5		1.5	V
$V_{BE(ON)}$	$V_{CE}=5.0\text{V}, I_C=10\text{mA}$		1.4		-		-	V
$V_{BE(ON)}$	$V_{CE}=5.0\text{V}, I_C=100\text{mA}$		-		2.0		2.0	V
$h_{FE}$	$V_{CE}=5.0\text{V}, I_C=10\text{mA}$	20,000		5,000		10,000		
$h_{FE}$	$V_{CE}=5.0\text{V}, I_C=100\text{mA}$	-		10,000		20,000		
$f_T$	$V_{CE}=5.0\text{V}, I_C=10\text{mA}, f=100\text{MHz}$	-		125		125		MHz