

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

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Manufacturers of World Class Discrete Semiconductors

2N5294

2N5296

2N5298

NPN SILICON TRANSISTOR

JEDEC TO-220 CASE

**DESCRIPTION**

The CENTRAL SEMICONDUCTOR 2N5294, 5296 and 5298 types are silicon NPN transistors that are manufactured by the epitaxial base process and designed for applications that require power amplifier and medium speed switching capabilities.

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

	SYMBOL	2N5294	2N5296	2N5298	UNIT
Collector-Base Voltage	$V_{CBO}$	80	60	80	V
Collector-Emitter Voltage	$V_{CEO}$	70	40	60	V
Collector-Emitter Voltage	$V_{CEV}$	80	60	80	V
Collector-Emitter Voltage ( $R_{BE}=100\Omega$ )	$V_{CER}$	75	50	70	V
Collector Current	$I_C$		4.0		A
Base Current	$I_B$		2.0		A
Power Dissipation	$P_D$		36		W
Operating and Storage Junction Temp.	$T_J, T_{stg}$	-65 TO +150			$^\circ\text{C}$
Thermal Resistance	$\theta_{JC}$	3.47			$^\circ\text{C/W}$

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

SYMBOL	TEST CONDITIONS	2N5294		2N5296		2N5298		UNIT
		MIN	MAX	MIN	MAX	MIN	MAX	
$I_{CEV}$	$V_{CE}=35\text{V}, V_{BE}=1.5\text{V}$		-		2.0		-	mA
$I_{CEV}$	$V_{CE}=65\text{V}, V_{BE}=1.5\text{V}$		0.5		-		0.5	mA
$I_{CEV}$	$V_{CE}=35\text{V}, V_{BE}=1.5\text{V}, T_C=150^\circ\text{C}$		-		5.0		-	mA
$I_{CEV}$	$V_{CE}=65\text{V}, V_{BE}=1.5\text{V}, T_C=150^\circ\text{C}$		3.0		-		3.0	mA
$I_{CER}$	$V_{CE}=50\text{V}, R_{BE}=100\Omega$		0.5		-		0.5	mA
$I_{CER}$	$V_{CE}=50\text{V}, R_{BE}=100\Omega, T_C=150^\circ\text{C}$		2.0		-		2.0	mA
$I_{EBO}$	$V_{BE}=7.0\text{V}$		1.0		-		-	mA
$I_{EBO}$	$V_{BE}=5.0\text{V}$		-		1.0		1.0	mA
$BV_{CEO}$	$I_C=100\text{mA}$	70		40		60		V
$BV_{CEV}$	$I_C=100\text{mA}, V_{BE}=1.5\text{V}$	80		60		80		V
$BV_{CER}$	$I_C=100\text{mA}, R_{BE}=100\Omega$	75		50		70		V
$V_{CE(SAT)}$	$I_C=0.5\text{A}, I_B=.05\text{A}$		1.0		-		-	V
$V_{CE(SAT)}$	$I_C=1.0\text{A}, I_B=0.1\text{A}$		-		1.0		-	V
$V_{CE(SAT)}$	$I_C=1.5\text{A}, I_B=0.15\text{A}$		-		-		1.0	V
$V_{BE(ON)}$	$V_{CE}=4.0\text{V}, I_C=0.5\text{A}$		1.1		-		-	V
$V_{BE(ON)}$	$V_{CE}=4.0\text{V}, I_C=1.0\text{A}$		-		1.3		-	V
$V_{BE(ON)}$	$V_{CE}=4.0\text{V}, I_C=1.5\text{A}$		-		-		1.5	V
$h_{FE}$	$V_{CE}=4.0\text{V}, I_C=0.5\text{V}$	30	120	-	-	-	-	
$h_{FE}$	$V_{CE}=4.0\text{V}, I_C=1.0\text{V}$	-	-	30	120	-	-	
$h_{FE}$	$V_{CE}=4.0\text{V}, I_C=1.5\text{V}$	-	-	-	-	20	80	
$f_T$	$V_{CE}=4.0\text{V}, I_C=0.2\text{A}$	0.8		0.8		0.8		MHz
$t_{ON}$	$V_{CC}=30\text{V}, I_C=0.5\text{A}, I_B=0.05\text{A}$		5.0		-		-	$\mu\text{s}$
$t_{ON}$	$V_{CC}=30\text{V}, I_C=1.0\text{A}, I_B=0.1\text{A}$		-		5.0		-	$\mu\text{s}$
$t_{ON}$	$V_{CC}=30\text{V}, I_C=1.5\text{A}, I_B=0.15\text{A}$		-		-		5.0	$\mu\text{s}$
$t_{OFF}$	$V_{CC}=30\text{V}, I_C=0.5\text{A}, I_B=0.05\text{A}$		15		-		-	$\mu\text{s}$
$t_{OFF}$	$V_{CC}=30\text{V}, I_C=1.0\text{A}, I_B=0.1\text{A}$		-		15		-	$\mu\text{s}$
$t_{OFF}$	$V_{CC}=30\text{V}, I_C=1.5\text{A}, I_B=0.15\text{A}$		-		-		15	$\mu\text{s}$