

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

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Manufacturers of World Class Discrete Semiconductors

2N4402

2N4403

PNP SILICON TRANSISTOR

JEDEC TO-92 CASE

DESCRIPTION

The CENTRAL SEMICONDUCTOR 2N4402, 2N4403 types are molded epoxy Silicon PNP Transistors designed for general purpose amplifier and switching applications. The NPN complementary types are 2N4400, 2N4401.

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

	<u>SYMBOL</u>		<u>UNIT</u>
Collector-Base Voltage	$V_{CB0}$	40	V
Collector-Emitter Voltage	$V_{CE0}$	40	V
Emitter-Base Voltage	$V_{EB0}$	5.0	V
Collector Current	$I_C$	600	mA
Power Dissipation	$P_D$	625	mW
Operating and Storage Junction Temperature	$T_J, T_{stg}$	-65 TO +150	$^{\circ}\text{C}$

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

<u>SYMBOL</u>	<u>TEST CONDITIONS</u>	2N4402		2N4403		<u>UNIT</u>
		<u>MIN</u>	<u>MAX</u>	<u>MIN</u>	<u>MAX</u>	
$I_{CEV}$	$V_{CE}=35\text{V}, V_{EB}(\text{OFF})=0.4\text{V}$		0.1		0.1	$\mu\text{A}$
$BV_{CB0}$	$I_C=0.1\text{mA}$	40		40		V
$BV_{CE0}$	$I_C=1.0\text{mA}$	40		40		V
$BV_{EB0}$	$I_E=0.1\text{mA}$	5.0		5.0		V
$V_{CE}(\text{SAT})$	$I_C=150\text{mA}, I_B=15\text{mA}$		0.4		0.4	V
$V_{CE}(\text{SAT})$	$I_C=500\text{mA}, I_B=50\text{mA}$		0.75		0.75	V
$V_{BE}(\text{SAT})$	$I_C=150\text{mA}, I_B=15\text{mA}$	0.75	0.95	0.75	0.95	V
$V_{BE}(\text{SAT})$	$I_C=500\text{mA}, I_B=50\text{mA}$		1.3		1.3	V
$h_{FE}$	$V_{CE}=1.0\text{V}, I_C=0.1\text{mA}$	-		30		
$h_{FE}$	$V_{CE}=1.0\text{V}, I_C=1.0\text{mA}$	30		60		
$h_{FE}$	$V_{CE}=1.0\text{V}, I_C=10\text{mA}$	50		100		
$h_{FE}$	$V_{CE}=2.0\text{V}, I_C=150\text{mA}$	50	150	100	300	
$h_{FE}$	$V_{CE}=2.0\text{V}, I_C=500\text{mA}$	20		20		
$h_{fe}$	$V_{CE}=10\text{V}, I_C=1.0\text{mA}, f=1.0\text{kHz}$	30	250	60	500	
$f_T$	$V_{CE}=10\text{V}, I_C=20\text{mA}, f=100\text{MHz}$	150		200		MHz
$C_{ob}$	$V_{CB}=10\text{V}, f=140\text{kHz}$		8.5		8.5	pF
$C_{ib}$	$V_{BE}=0.5\text{V}, f=140\text{kHz}$		30		30	pF
$t_{on}$	$V_{CC}=30\text{V}, V_{EB}(\text{OFF})=2.0\text{V}, I_C=150\text{mA}, I_{B1}=15\text{mA}$		35		35	ns
$t_{off}$	$V_{CC}=30\text{V}, I_C=150\text{mA}, I_{B1}=I_{B2}=15\text{mA}$		255		255	ns