

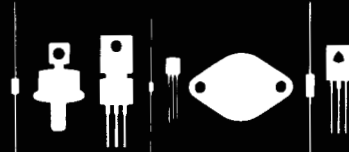
Central  
Semiconductor Corp.

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145 Adams Avenue  
Hauppauge, New York 11788



2N5022  
2N5023

PNP SILICON TRANSISTOR

JEDEC TO-39 CASE

### DESCRIPTION

The CENTRAL SEMICONDUCTOR 2N5022 series types are silicon PNP switching transistors manufactured by the epitaxial planar process mounted in a hermetically sealed metal case, designed for core driver applications.

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

	SYMBOL	2N5022	2N5023	UNIT
Collector-Base Voltage	$V_{CB0}$	50	30	V
Collector-Emitter Voltage	$V_{CE0}$	50	30	V
Emitter-Base Voltage	$V_{EB0}$	5.0	5.0	V
Collector-Current-continuous	$I_C$	1.0	1.0	A
Power Dissipation, $T_A=25^\circ\text{C}$	$P_D$	1.0	1.0	W
Power Dissipation, $T_C=25^\circ\text{C}$	$P_D$	4.0	4.0	W
Operating and Storage Junction Temperature	$T_J, T_{STG}$	-65 TO +200		$^\circ\text{C}$
Thermal Resistance	$\theta_{JC}$	43.8		$^\circ\text{C}/\text{W}$
Thermal Resistance	$\theta_{JA}$	175		$^\circ\text{C}/\text{W}$

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

SYMBOL	TEST CONDITIONS	2N5022		2N5023		UNIT
		MIN	MAX	MIN	MAX	
$I_{CES}$	$V_{CE}=30\text{V}$		100	-		nA
$I_{CES}$	$V_{CE}=20\text{V}$		-	100		nA
$I_{CES}$	$V_{CE}=30\text{V}, T_A=100^\circ\text{C}$		15	-		$\mu\text{A}$
$I_{CES}$	$V_{CE}=20\text{V}, T_A=100^\circ\text{C}$		-	15		$\mu\text{A}$
$BV_{CB0}$	$I_C=100\mu\text{A}$	50		30		V
$BV_{CES}$	$I_C=100\mu\text{A}$	50		30		V
$BV_{CE0}$	$I_C=10\text{mA}$	50		30		V
$BV_{EB0}$	$I_E=100\mu\text{A}$	5		5		V
$V_{CE}(\text{SAT})$	$I_C=100\text{mA}, I_B=10\text{mA}$		0.20		0.17	V
$V_{CE}(\text{SAT})$	$I_C=500\text{mA}, I_B=50\text{mA}$		0.40		0.35	V
$V_{CE}(\text{SAT})$	$I_C=1.0\text{A}, I_B=100\text{mA}$		0.80		0.70	V
$V_{BE}(\text{SAT})$	$I_C=100\text{mA}, I_B=10\text{mA}$		1.0		1.0	V
$V_{BE}(\text{SAT})$	$I_C=500\text{mA}, I_B=50\text{mA}$	0.8	1.4	0.8	1.4	V
$V_{BE}(\text{SAT})$	$I_C=1.0\text{A}, I_B=100\text{mA}$		1.75		1.75	V
$h_{FE}$	$V_{CE}=1.0\text{V}, I_C=100\text{mA}$	15		30		
$h_{FE}$	$V_{CE}=1.0\text{V}, I_C=50\text{mA}$	25	100	40	100	
$h_{FE}$	$V_{CE}=5.0\text{V}, I_C=1.0\text{A}$	25		40		
$h_{FE}$	$V_{CE}=1.0\text{V}, I_C=500\text{mA}, T_A=-55^\circ\text{C}$	10		20		
$f_T$	$V_{CE}=10\text{V}, I_C=50\text{mA}, f=100\text{MHz}$	170		200		MHz
$C_{ob}$	$V_{BE}=10\text{V}, f=100\text{kHz}$		25		25	pF
$C_{ib}$	$V_{BE}=0.5\text{V}, f=100\text{kHz}$		100		100	pF
$t_{on}$	$V_{CE}=-30\text{V}, I_C=500\text{mA}, I_B=50\text{mA}$		40		40	ns
$t_{off}$	$V_{CE}=30\text{V}, I_C=500\text{mA}, I_{B1}=I_{B2}=50\text{mA}$		90		90	ns