

CMPT491E

**ENHANCED SPECIFICATION  
SURFACE MOUNT  
NPN SILICON TRANSISTOR**



www.centrasemi.com



SOT-23 CASE

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CMPT491E type is an Enhanced version of the industry standard 491 NPN silicon transistor. This device is manufactured by the epitaxial planar process and epoxy molded in an SOT-23 surface mount package. The CMPT491E features Low  $V_{CE(SAT)}$ , high  $h_{FE}$ , and has been designed for high current general purpose amplifier applications.

**MARKING CODE: C49**

**COMPLEMENTARY TYPE: CMPT591E**

**FEATURED ENHANCED SPECIFICATIONS:**

- ◆  $V_{CE(SAT)}$  @ 1.0A = 0.4V MAX (from 0.5V MAX)
- ◆  $h_{FE}$  @ 500mA = 200 MIN (from 100 MIN)

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

	SYMBOL		UNITS
Collector-Base Voltage	$V_{CBO}$	80	V
Collector-Emitter Voltage	$V_{CEO}$	60	V
Emitter-Base Voltage	$V_{EBO}$	5.0	V
Continuous Collector Current	$I_C$	1.0	A
Continuous Base Current	$I_B$	200	mA
Peak Collector Current	$I_{CM}$	2.0	A
Power Dissipation	$P_D$	350	mW
Operating and Storage Junction Temperature	$T_J, T_{stg}$	-65 to +150	$^\circ\text{C}$
Thermal Resistance	$\theta_{JA}$	357	$^\circ\text{C/W}$

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

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
$I_{CBO}$	$V_{CB}=60\text{V}$		100	nA
$I_{EBO}$	$V_{EB}=4.0\text{V}$		100	nA
$BV_{CBO}$	$I_C=100\mu\text{A}$	80		V
$BV_{CEO}$	$I_C=10\text{mA}$	60		V
$BV_{EBO}$	$I_E=100\mu\text{A}$	5.0		V
◆ $V_{CE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$		<b>0.20</b>	<b>V</b>
◆ $V_{CE(SAT)}$	$I_C=1.0\text{A}, I_B=100\text{mA}$		<b>0.40</b>	<b>V</b>
$V_{BE(SAT)}$	$I_C=1.0\text{A}, I_B=100\text{mA}$		1.1	V
$V_{BE(ON)}$	$V_{CE}=5.0\text{V}, I_C=1.0\text{A}$		1.0	V
◆ $h_{FE}$	$V_{CE}=5.0\text{V}, I_C=1.0\text{mA}$	<b>200</b>		
◆ $h_{FE}$	$V_{CE}=5.0\text{V}, I_C=500\text{mA}$	<b>200</b>	<b>600</b>	
$h_{FE}$	$V_{CE}=5.0\text{V}, I_C=1.0\text{A}$	50		
$h_{FE}$	$V_{CE}=5.0\text{V}, I_C=2.0\text{A}$	15		
$f_T$	$V_{CE}=10\text{V}, I_C=50\text{mA}, f=100\text{MHz}$	150		MHz
$C_{ob}$	$V_{CB}=10\text{V}, I_E=0, f=1.0\text{MHz}$		10	pF

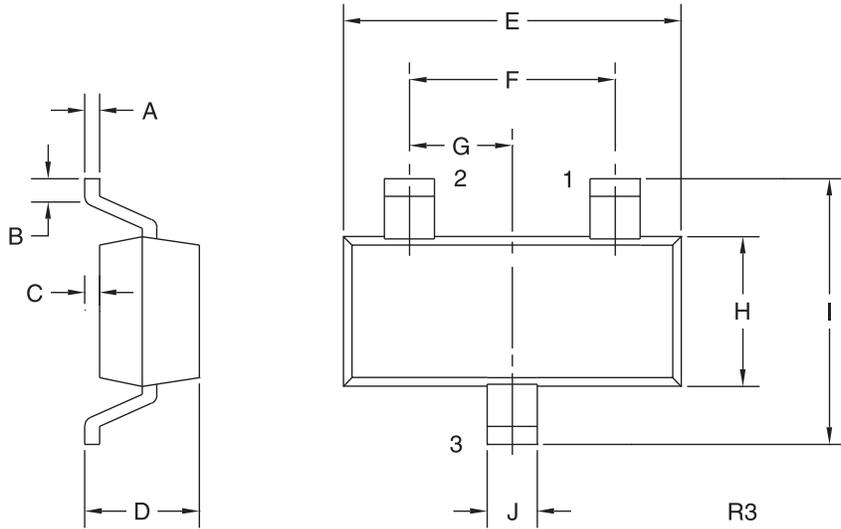
◆ Enhanced specification

R4 (27-January 2010)

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**SOT-23 CASE - MECHANICAL OUTLINE**



**LEAD CODE:**

- 1) Base
- 2) Emitter
- 3) Collector

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<b>DIMENSIONS</b>				
<b>SYMBOL</b>	<b>INCHES</b>		<b>MILLIMETERS</b>	
	<b>MIN</b>	<b>MAX</b>	<b>MIN</b>	<b>MAX</b>
A	0.003	0.007	0.08	0.18
B	0.006	-	0.15	-
C	-	0.005	-	0.13
D	0.035	0.043	0.89	1.09
E	0.110	0.120	2.80	3.05
F	0.075		1.90	
G	0.037		0.95	
H	0.047	0.055	1.19	1.40
I	0.083	0.098	2.10	2.49
J	0.014	0.020	0.35	0.50

SOT-23 (REV: R3)

R4 (27-January 2010)

## OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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### PRODUCT SUPPORT

Central's operations team provides the highest level of support to insure product is delivered on-time.

- Supply management (Customer portals)
- Inventory bonding
- Consolidated shipping options
- Custom bar coding for shipments
- Custom product packing

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### DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

- Free quick ship samples (2<sup>nd</sup> day air)
- Online technical data and parametric search
- SPICE models
- Custom electrical curves
- Environmental regulation compliance
- Customer specific screening
- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

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### REQUESTING PRODUCT PLATING

1. If requesting Tin/Lead plated devices, add the suffix "TIN/LEAD" to the part number when ordering (example: 2N2222A TIN/LEAD).
2. If requesting Lead (Pb) Free plated devices, add the suffix "PBFREE" to the part number when ordering (example: 2N2222A PBFREE).

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### CONTACT US

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