

CMPT491E

**ENHANCED SPECIFICATION  
SURFACE MOUNT  
NPN SILICON TRANSISTOR**



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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

**MARKING CODE: C49**

<b>DIMENSIONS</b>				
SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
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)

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