

CMPT2222AE

**ENHANCED SPECIFICATION  
SURFACE MOUNT  
NPN SILICON TRANSISTOR**



www.centrasemi.com



SOT-23 CASE

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CMPT2222AE is an Enhanced version of the CMPT2222A NPN Switching transistor in a SOT-23 surface mount package, designed for switching applications, interface circuit and driver circuit applications.

**MARKING CODE: C1PE**

**FEATURED ENHANCED SPECIFICATIONS:**

- ◆  $V_{CB0}$  from 75V min to 100V min. (145V TYP)
- ◆  $V_{CE}$  from 1.0V max to 0.5V max. (0.12V TYP)
- ◆  $h_{FE}$  from 40 to 60 min. (130 TYP)

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

- ◆ **Collector-Base Voltage**
- ◆ **Collector-Emitter Voltage**
- Emitter-Base Voltage
- Continuous Collector Current
- Power Dissipation
- Operating and Storage Junction Temperature
- Thermal Resistance

SYMBOL		UNITS
$V_{CB0}$	100	V
$V_{CEO}$	45	V
$V_{EBO}$	6.0	V
$I_C$	600	mA
$P_D$	350	mW
$T_J, T_{stg}$	-65 to +150	$^\circ\text{C}$
$\Theta_{JA}$	357	$^\circ\text{C/W}$

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

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
$I_{CBO}$	$V_{CB}=60\text{V}$			10	nA
$I_{CBO}$	$V_{CB}=60\text{V}, T_A=125^\circ\text{C}$			10	$\mu\text{A}$
$I_{CEV}$	$V_{CE}=60\text{V}, V_{EB}=3.0\text{V}$			10	nA
$I_{EBO}$	$V_{EB}=3.0\text{V}$			10	nA
◆ $BV_{CB0}$	$I_C=10\mu\text{A}$	100	145		V
◆ $BV_{CEO}$	$I_C=10\text{mA}$	45	53		V
$BV_{EBO}$	$I_E=10\mu\text{A}$	6.0			V
◆ $V_{CE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$		0.92	0.15	V
◆ $V_{CE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$		0.12	0.50	V
$V_{BE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$	0.6		1.2	V
$V_{BE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$			2.0	V
◆ $h_{FE}$	$V_{CE}=10\text{V}, I_C=0.1\text{mA}$	100	210		
◆ $h_{FE}$	$V_{CE}=10\text{V}, I_C=1.0\text{mA}$	100	205		
◆ $h_{FE}$	$V_{CE}=10\text{V}, I_C=10\text{mA}$	100	205		
◆ $h_{FE}$	$V_{CE}=1.0\text{V}, I_C=150\text{mA}$	75	150		
$h_{FE}$	$V_{CE}=10\text{V}, I_C=150\text{mA}$	100		300	
◆ $h_{FE}$	$V_{CE}=10\text{V}, I_C=500\text{mA}$	60	130		
$f_T$	$V_{CE}=20\text{V}, I_C=20\text{mA}, f=100\text{MHz}$	300			MHz
$C_{ob}$	$V_{CB}=10\text{V}, I_E=0, f=1.0\text{MHz}$			8.0	pF
$C_{ib}$	$V_{BE}=0.5\text{V}, I_C=0, f=1.0\text{MHz}$			25	pF

◆ Enhanced specification

R2 (1-February 2010)

CMPT2222AE

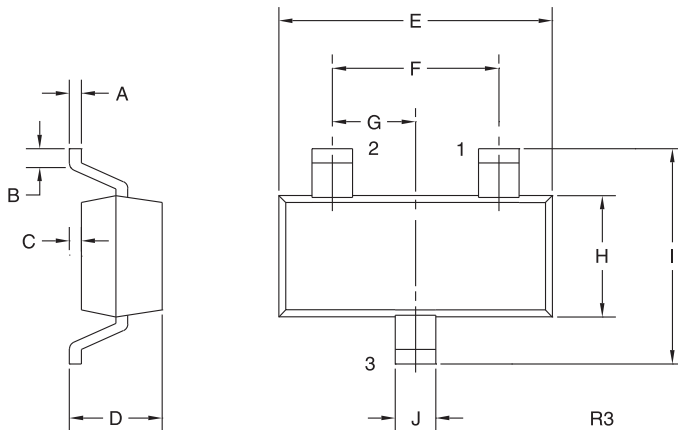
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**ELECTRICAL CHARACTERISTICS - Continued:** ( $T_A=25^\circ\text{C}$  unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
$h_{ie}$	$V_{CE}=10\text{V}, I_C=1.0\text{mA}, f=1.0\text{kHz}$	2.0	8.0	$k\Omega$
$h_{ie}$	$V_{CE}=10\text{V}, I_C=10\text{mA}, f=1.0\text{kHz}$	0.25	1.25	$k\Omega$
$h_{re}$	$V_{CE}=10\text{V}, I_C=1.0\text{mA}, f=1.0\text{kHz}$		8.0	$\times 10^{-4}$
$h_{re}$	$V_{CE}=10\text{V}, I_C=10\text{mA}, f=1.0\text{kHz}$		4.0	$\times 10^{-4}$
$h_{fe}$	$V_{CE}=10\text{V}, I_C=1.0\text{mA}, f=1.0\text{kHz}$	50	300	
$h_{fe}$	$V_{CE}=10\text{V}, I_C=10\text{mA}, f=1.0\text{kHz}$	75	375	
$h_{oe}$	$V_{CE}=10\text{V}, I_C=1.0\text{mA}, f=1.0\text{kHz}$	5.0	35	$\mu\text{S}$
$h_{oe}$	$V_{CE}=10\text{V}, I_C=10\text{mA}, f=1.0\text{kHz}$	25	200	$\mu\text{S}$
$rb'C_c$	$V_{CB}=10\text{V}, I_E=20\text{mA}, f=31.8\text{MHz}$		150	ps
NF	$V_{CE}=10\text{V}, I_C=100\mu\text{A}, R_S=1.0\text{k}\Omega, f=1.0\text{kHz}$		4.0	dB
$t_d$	$V_{CC}=30\text{V}, V_{BE}=0.5\text{V}, I_C=150\text{mA}, I_{B1}=15\text{mA}$		10	ns
$t_r$	$V_{CC}=30\text{V}, V_{BE}=0.5\text{V}, I_C=150\text{mA}, I_{B1}=15\text{mA}$		25	ns
$t_s$	$V_{CC}=30\text{V}, I_C=150\text{mA}, I_{B1}=I_{B2}=15\text{mA}$		225	ns
$t_f$	$V_{CC}=30\text{V}, I_C=150\text{mA}, I_{B1}=I_{B2}=15\text{mA}$		60	ns

**SOT-23 CASE - MECHANICAL OUTLINE**



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)

**LEAD CODE:**

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

**MARKING CODE: C1PE**

R2 (1-February 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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