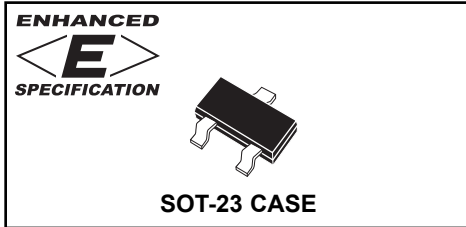


**CMPT2222AE**  
**ENHANCED SPECIFICATION**  
**SURFACE MOUNT**  
**NPN SILICON TRANSISTOR**



# Central<sup>TM</sup>

## Semiconductor Corp.

**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:**

- ◆  $BV_{CBO}$  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
- Collector Current
- Power Dissipation
- Operating and Storage
- Junction Temperature
- Thermal Resistance

SYMBOL		UNITS
$V_{CBO}$	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
◆ $BV_{CBO}$	$I_C=10\mu\text{A}$	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

- ◆ Enhanced specification.

R1 (20-February 2003)

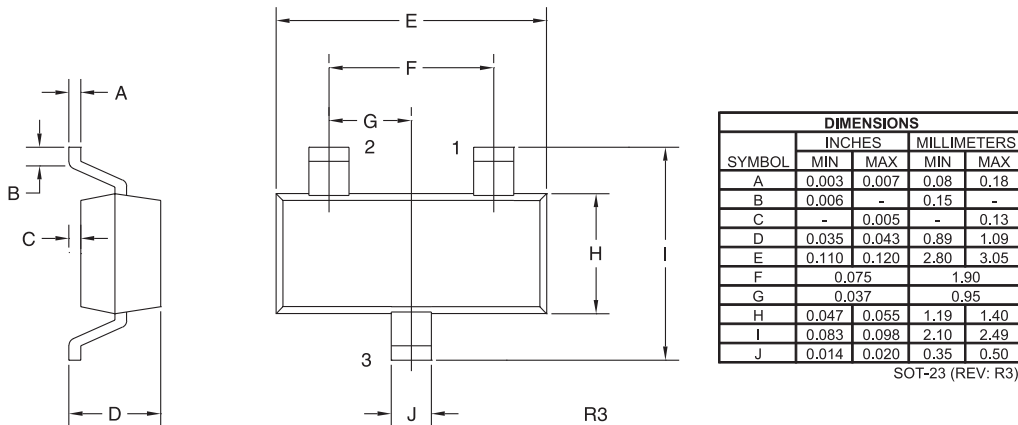
**ENHANCED SPECIFICATION**

**SURFACE MOUNT  
NPN SILICON TRANSISTOR**

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

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
$C_{ob}$	$V_{CB}=10\text{V}$ , $I_E=0$ , $f=1.0\text{MHz}$			8.0	pF
$C_{ib}$	$V_{BE}=0.5\text{V}$ , $I_C=0$ , $f=1.0\text{MHz}$			25	pF
$h_{ie}$	$V_{CE}=10\text{V}$ , $I_C=1.0\text{mA}$ , $f=1.0\text{kHz}$	2.0		8.0	$\text{k}\Omega$
$h_{ie}$	$V_{CE}=10\text{V}$ , $I_C=10\text{mA}$ , $f=1.0\text{kHz}$	0.25		1.25	$\text{k}\Omega$
$h_{re}$	$V_{CE}=10\text{V}$ , $I_C=1.0\text{mA}$ , $f=1.0\text{kHz}$			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	$\mu\text{hos}$
$h_{oe}$	$V_{CE}=10\text{V}$ , $I_C=10\text{mA}$ , $f=1.0\text{kHz}$	25		200	$\mu\text{hos}$
$rb'C_C$	$V_{CB}=10\text{V}$ , $I_E=20\text{mA}$ , $f=31.8\text{MHz}$			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**



**LEAD CODE:**

- 1) BASE
- 2) EMITTER
- 3) COLLECTOR

**MARKING CODE: C1PE**

R1 (20-February 2003)