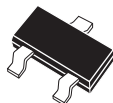


CMPT3904E NPN  
CMPT3906E PNP

**ENHANCED SPECIFICATION  
SURFACE MOUNT COMPLEMENTARY  
SILICON TRANSISTORS**

**ENHANCED  
E  
SPECIFICATION**



**SOT-23 CASE**

**MARKING CODES: CMPT3904E: C1AE  
CMPT3906E: C2AE**

# Central™

**Semiconductor Corp.**

**DESCRIPTION:**

The Central Semiconductor CMPT3904E , CMPT3906E are Enhanced versions of the CMPT3904, CMPT3906 complementary switching transistors in a SOT-23 surface mount package, designed for small signal switching applications, interface circuit & driver circuit applications.

**ENHANCED SPECIFICATIONS:**

- ◆  $V_{CBO}$  from 40V min to 60V min. (CMPT3906E)
- ◆  $V_{EBO}$  from 5.0V min to 6.0V min. (CMPT3906E)
- ◆  $V_{CE(SAT)}$  from 0.3V max to 0.2V max. (CMPT3904E)  
from 0.4V max to 0.2V max. (CMPT3906E)
- ◆  $h_{FE}$  from 60 min to 70 min. (CMPT3904E) (CMPT3906E)

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

	SYMBOL		UNITS
◆ <b>Collector-Base Voltage</b>	$V_{CBO}$	<b>60</b>	<b>V</b>
Collector-Emitter Voltage	$V_{CEO}$	40	V
◆ <b>Emitter-Base Voltage</b>	$V_{EBO}$	<b>6.0</b>	<b>V</b>
Collector Current	$I_C$	200	mA
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	CMPT3904E		CMPT3906E		UNITS
		MIN	TYP	TYP	MAX	
$I_{CEV}$	$V_{CE}=30\text{V}, V_{EB}=3.0\text{V}$	-	-	-	50	nA
◆ $BV_{CBO}$	$I_C=10\mu\text{A}$	<b>60</b>	<b>115</b>	<b>90</b>	-	<b>V</b>
$BV_{CEO}$	$I_C=1.0\text{mA}$	40	60	55	-	V
◆ $BV_{EBO}$	$I_E=10\mu\text{A}$	<b>6.0</b>	<b>7.5</b>	<b>7.9</b>		<b>V</b>
◆ $V_{CE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$		<b>0.057</b>	<b>0.050</b>	<b>0.100</b>	<b>V</b>
◆ $V_{CE(SAT)}$	$I_C=50\text{mA}, I_B=5.0\text{mA}$		<b>0.100</b>	<b>0.100</b>	<b>0.200</b>	<b>V</b>
$V_{BE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$	0.65	0.75	0.75	0.85	V
$V_{BE(SAT)}$	$I_C=50\text{mA}, I_B=5.0\text{mA}$		0.85	0.85	0.95	V
◆ $h_{FE}$	$V_{CE}=1.0\text{V}, I_C=0.1\text{mA}$	<b>90</b>	<b>240</b>	<b>130</b>		
◆ $h_{FE}$	$V_{CE}=1.0\text{V}, I_C=1.0\text{mA}$	<b>100</b>	<b>235</b>	<b>150</b>		
$h_{FE}$	$V_{CE}=1.0\text{V}, I_C=10\text{mA}$	100	215	150	300	
◆ $h_{FE}$	$V_{CE}=1.0\text{V}, I_C=50\text{mA}$	<b>70</b>	<b>110</b>	<b>120</b>		
$h_{FE}$	$V_{CE}=1.0\text{V}, I_C=100\text{mA}$	30	50	55		

- ◆ Enhanced specification.

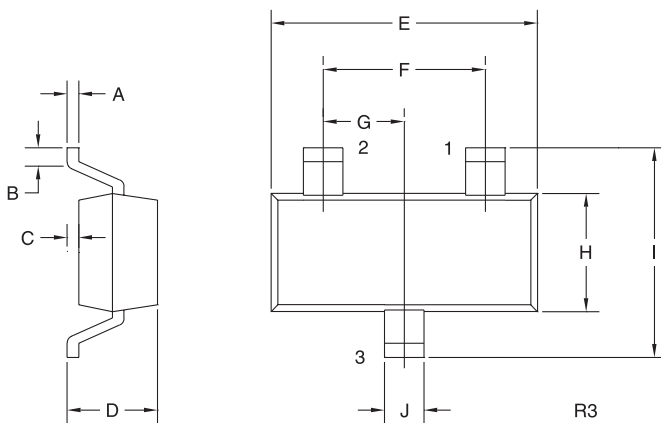
R2 (13-November 2002)

**ENHANCED SPECIFICATION  
SURFACE MOUNT  
COMPLEMENTARY  
SILICON TRANSISTORS**

**SYMBOL TEST CONDITIONS**

		MIN	MAX	UNITS
$f_T$	$V_{CE}=20V, I_C=10mA, f=100MHz$	300		MHz
$C_{ob}$	$V_{CB}=5.0V, I_E=0, f=1.0MHz$		4.0	pF
$C_{ib}$	$V_{BE}=0.5V, I_C=0, f=1.0MHz$		8.0	pF
$h_{ie}$	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	1.0	12	$k\Omega$
$h_{re}$	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	0.1	10	$\times 10^{-4}$
$h_{fe}$	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	100	400	
$h_{oe}$	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	1.0	60	$\mu mhos$
NF	$V_{CE}=5.0V, I_C=100\mu A, R_S=1.0K\Omega, f=10Hz$ to 15.7kHz		4.0	dB
$t_d$	$V_{CC}=3.0V, V_{BE}=0.5V, I_C=10mA, I_{B1}=1.0mA$		35	ns
$t_r$	$V_{CC}=3.0V, V_{BE}=0.5V, I_C=10mA, I_{B1}=1.0mA$		35	ns
$t_s$	$V_{CC}=3.0V, I_C=10mA, I_{B1}=I_{B2}=1.0mA$		200	ns
$t_f$	$V_{CC}=3.0V, I_C=10mA, I_{B1}=I_{B2}=1.0mA$		50	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 CODES:**

- |           |      |
|-----------|------|
| CMPT3904E | C1AE |
| CMPT3906E | C2AE |