CMPT3904E NPN
CMPT3906E PNP

ENHANCED SPECIFICATION
SURFACE MOUNT SILICON COMPLEMENTARY TRANSISTORS



ENHANCED E SPECIFICATION

SOT-23 CASE

MARKING CODE: CMPT3904E: C1AE
CMPT3906E: C2AE

Central Semiconductor Corp.

www.centralsemi.com

DESCRIPTION:

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

ENHANCED SPECIFICATIONS:

- BV_{CBO} from 40V min to 60V min. (CMPT3906E)
- BV_{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°C)	**SYMBOL**		**UNITS**
♦ **Collector-Base Voltage**	**V_{CBO}**	**60**	**V**
Collector-Emitter Voltage	V_{CEO}	40	V
♦ **Emitter-Base Voltage**	**V_{EBO}**	**6.0**	**V**
Continuous Collector Current	I_C	200	mA
Power Dissipation	P_D	350	mW
Operating and Storage Junction Temperature	T_J, T_{stg}	-65 to +150	°C
Thermal Resistance	Θ_{JA}	375	°C/W

ELECTRICAL CHARACTERISTICS: (T_A=25°C unless otherwise noted)

			CMPT3904E	CMPT3906E		
SYMBOL	**TEST CONDITIONS**	**MIN**	**TYP**	**TYP**	**MAX**	**UNITS**
I_{CEV}	V_{CE}=30V, V_{EB}=3.0V				50	nA
♦ **BV_{CBO}**	**I_C=10µA**	**60**	**115**	**90**		**V**
BV_{CEO}	I_C=1.0mA	40	60	55		V
♦ **BV_{EBO}**	**I_E=10µA**	**6.0**	**7.5**	**7.9**		**V**
♦ **$V_{CE(SAT)}$**	**I_C=10mA, I_B=1.0mA**		**0.057**	**0.050**	**0.100**	**V**
♦ **$V_{CE(SAT)}$**	**I_C=50mA, I_B=5.0mA**		**0.100**	**0.100**	**0.200**	**V**
$V_{BE(SAT)}$	I_C=10mA, I_B=1.0mA	0.65	0.75	0.75	0.85	V
$V_{BE(SAT)}$	I_C=50mA, I_B=5.0mA		0.85	0.85	0.95	V
♦ **h_{FE}**	**V_{CE}=1.0V, I_C=0.1mA**	**90**	**240**	**130**		
♦ **h_{FE}**	**V_{CE}=1.0V, I_C=1.0mA**	**100**	**235**	**150**		
h_{FE}	V_{CE}=1.0V, I_C=10mA	100	215	150	300	
♦ **h_{FE}**	**V_{CE}=1.0V, I_C=50mA**	**70**	**110**	**120**		
h_{FE}	V_{CE}=1.0V, I_C=100mA	30	50	55		

♦ Enhanced specification

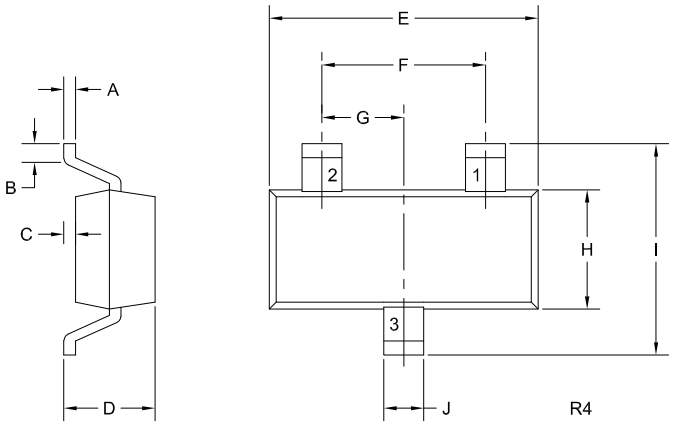
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ELECTRICAL CHARACTERISTICS - Continued: (T_A=25°C)

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		12	pF
h_{ie}	V_{CE}=10V, I_C=1.0mA, f=1.0kHz	1.0	12	kΩ
h_{re}	V_{CE}=10V, I_C=1.0mA, f=1.0kHz	0.1	10	$X10^{-4}$
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	µS
NF	V_{CE}=5.0V, I_C=100µA, R_S =1.0KΩ, 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



DIMENSIONS				
	INCHES		MILLIMETERS	
SYMBOL	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	0.044	0.89	1.12
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	0.104	2.10	2.64
J	0.014	0.020	0.35	0.50

SOT-23 (REV: R4)

LEAD CODE:
1) Base
2) Emitter
3) Collector

MARKING CODES:
CMPT3904E: C1AE
CMPT3906E: C2AE

OUTSTANDING SUPPORT AND SUPERIOR SERVICES

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

DESIGNER SUPPORT/SERVICES

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

- Free quick ship samples (2nd 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

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).

CONTACT US

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