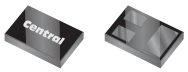
CET3904E NPN
CET3906E PNP

ENHANCED SPECIFICATION
SURFACE MOUNT
COMPLEMENTARY
SILICON TRANSISTORS

TLP™ Tiny Leadless Package



Top View Bottom View

ENHANCED E SPECIFICATION

SOT-883L CASE

Central Semiconductor Corp.

www.centralsemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CET3904E / CET3906E Low $V_{CE(SAT)}$ NPN and PNP Transistors, respectively, are designed for applications where ultra small size and power dissipation are the prime requirements. Packaged in a Tiny Leadless Package TLP™, these components provide performance characteristics suitable for the most demanding size constrained applications.

MARKING CODES: CET3904E: C
CET3906E: D

FEATURES:

- Device is ***Halogen Free*** by design
- 250mW Power Dissipation
- Low $V_{CE(SAT)}$ 0.1V Typ @ 50mA
- Small, TLP™ 1x0.4mm, SOT-883L Leadless, Low Profile, Surface Mount Package

APPLICATIONS:

- DC / DC Converters
- Battery powered devices including Cell Phones and Digital Cameras

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 (Note 1)	P_D	250	mW
Power Dissipation (Note 2)	P_D	430	mW
Operating and Storage Junction Temperature	T_J, T_{stg}	-65 to +150	°C
Thermal Resistance (Note 1)	Θ_{JA}	500	°C/W
Thermal Resistance (Note 2)	Θ_{JA}	290	°C/W

ELECTRICAL CHARACTERISTICS:

			NPN	**PNP**		
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

♦ Enhanced specification

Notes: (1) FR-4 epoxy PC board, standard mounting conditions
(2) FR-4 epoxy PC board with collector mounting pad area of 1 cm^2

R2 (4-January 2010)

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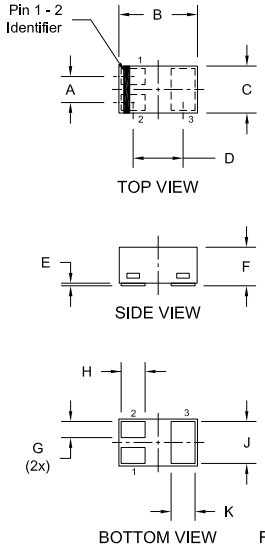
ELECTRICAL CHARACTERISTICS - Continued:

	SYMBOL	TEST CONDITIONS	MIN	NPN TYP	PNP TYP	MAX	UNITS
♦	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		
	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	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

♦ Enhanced specification

SOT-883L CASE - MECHANICAL OUTLINE



DIMENSIONS				
	INCHES		MILLIMETERS	
SYMBOL	MIN	MAX	MIN	MAX
A	0.014		0.35	
B	0.037	0.041	0.95	1.05
C	0.022	0.026	0.55	0.65
D	0.026		0.65	
E	0.000	0.002	0.00	0.05
F	0.012	0.016	0.30	0.40
G	0.005	0.007	0.13	0.18
H	0.008	0.012	0.20	0.30
J	0.018	0.022	0.45	0.55
K	0.008	0.012	0.20	0.30

SOT-883L (REV:R2)

LEAD CODE:
1) BASE
2) EMITTER
3) COLLECTOR

MARKING CODES:
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