CMKT3904 NPN/NPN
CMKT3906 PNP/PNP
CMKT3946 NPN/PNP

SURFACE MOUNT
DUAL SMALL SIGNAL SILICON
SWITCHING TRANSISTORS

ULTRAmini™

SOT-363 CASE

Central Semiconductor Corp.

www.centralsemi.com

DESCRIPTION:

The Central Semiconductor CMKT3904 (two single NPN), CMKT3906 (two single PNP), and CMKT3946 (one each NPN and PNP complementary) are combinations of transistors in a space saving SOT-363 ULTRAmini™ package, designed for small signal general purpose amplifier and switching applications.

CMKT3904 MARKING CODE: K04
CMKT3906 MARKING CODE: K06
CMKT3946 MARKING CODE: K46

FEATURES:

- ULTRAmini™ space saving package
- Two NPN (3904) or Two PNP (3906) Transistors in a single package
- One NPN (3904) and one PNP (3906) complementary Transistor in a single package

MAXIMUM RATINGS: (T_A=25°C)	**SYMBOL**	**NPN**	**PNP**	**UNITS**
Collector-Base Voltage	V_{CBO}	60	40	V
Collector-Emitter Voltage	V_{CEO}	40	40	V
Emitter-Base Voltage	V_{EBO}	6.0	5.0	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}	357		°C/W

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

		NPN		**PNP**		
SYMBOL	**TEST CONDITIONS**	**MIN**	**MAX**	**MIN**	**MAX**	**UNITS**
I_{CEV}	V_{CE}=30V, V_{EB}=3.0V	-	50	-	50	nA
I_{BL}	V_{CE}=30V, V_{EB}=3.0V	-	50	-	-	nA
BV_{CBO}	I_C=10μA	60	-	40	-	nA
BV_{CEO}	I_C=1.0mA	40	-	40	-	nA
BV_{EBO}	I_E=10μA	6.0	-	5.0	-	nA
$V_{CE(SAT)}$	I_C=10mA, I_B=1.0mA	-	0.20	-	0.25	V
$V_{CE(SAT)}$	I_C=50mA, I_B=5.0mA	-	0.30	-	0.40	V
$V_{BE(SAT)}$	I_C=10mA, I_B=1.0mA	0.65	0.85	0.65	0.85	V
$V_{BE(SAT)}$	I_C=50mA, I_B=5.0mA	-	0.95	-	0.95	V
h_{FE}	V_{CE}=1.0V, I_C=0.1mA	40	-	60	-	
h_{FE}	V_{CE}=1.0V, I_C=1.0mA	70	-	80	-	
h_{FE}	V_{CE}=1.0V, I_C=10mA	100	300	100	300	
h_{FE}	V_{CE}=1.0V, I_C=50mA	60	-	60	-	
h_{FE}	V_{CE}=1.0V, I_C=100mA	30	-	30	-	
f_T	V_{CE}=20V, I_C=10mA, f=100MHz	300	-	250	-	MHz
C_{ob}	V_{CB}=5.0V, I_E=0, f=1.0MHz	-	4.0	-	4.5	pF
C_{ib}	V_{BE}=0.5V, I_C=0, f=1.0MHz	-	8.0	-	10	pF

R4 (13-January 2010)

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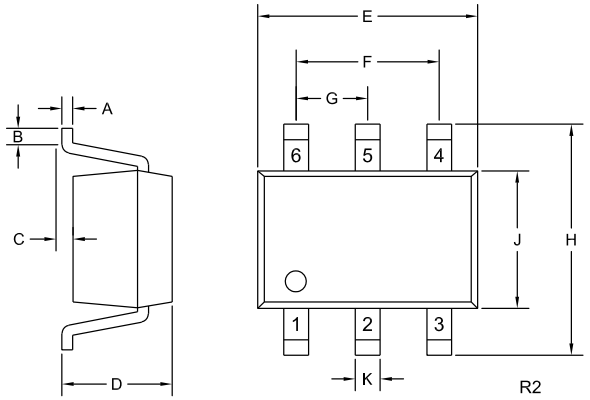
ELECTRICAL CHARACTERISTICS PER TRANSISTOR - Continued: (T_A=25°C)

		NPN		PNP		
SYMBOL	**TEST CONDITIONS**	**MIN**	**MAX**	**MIN**	**MAX**	**UNITS**
h_{ie}	V_{CE}=10V, I_C=1.0mA, f=1.0kHz	1.0	10	2.0	12	kΩ
h_{re}	V_{CE}=10V, I_C=1.0mA, f=1.0kHz	0.5	8.0	0.1	10	$x10^{-4}$
h_{fe}	V_{CE}=10V, I_C=1.0mA, f=1.0kHz	100	400	100	400	
h_{oe}	V_{CE}=10V, I_C=1.0mA, f=1.0kHz	1.0	40	3.0	60	μS
NF	V_{CE}=5.0V, I_C=100μA, R_S=1.0kΩ, f=10Hz to 15.7kHz	-	5.0	-	4.0	dB
t_d	V_{CC}=3.0V, V_{BE}=0.5V, I_C=10mA, I_{B1}=1.0mA	-	35	-	35	ns
t_r	V_{CC}=3.0V, V_{BE}=0.5V, I_C=10mA, I_{B1}=1.0mA	-	35	-	35	ns
t_s	V_{CC}=3.0V, I_C=10mA, I_{B1}=I_{B2}=1.0mA	-	200	-	225	ns
t_f	V_{CC}=3.0V, I_C=10mA, I_{B1}=I_{B2}=1.0mA	-	50	-	75	ns

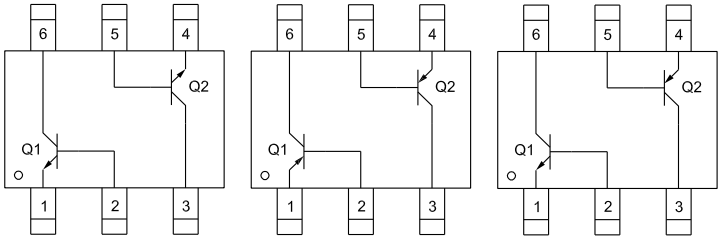
SOT-363 CASE - MECHANICAL OUTLINE



DIMENSIONS				
	INCHES		MILLIMETERS	
SYMBOL	MIN	MAX	MIN	MAX
A	0.004	0.010	0.10	0.25
B	0.005	-	0.12	-
C	0.000	0.004	0.00	0.10
D	0.031	0.043	0.80	1.10
E	0.071	0.087	1.80	2.20
F	0.051		1.30	
G	0.026		0.65	
H	0.075	0.091	1.90	2.30
J	0.043	0.055	1.10	1.40
K	0.006	0.012	0.15	0.30

SOT-363 (REV: R2)

PIN CONFIGURATIONS



CMKT3904
(NPN/NPN)
MARKING CODE: K04

CMKT3906
(PNP/PNP)
MARKING CODE: K06

CMKT3946
(NPN/PNP)
MARKING CODE: K46

LEAD CODES:
1) Emitter Q1
2) Base Q1
3) Collector Q2
4) Emitter Q2
5) Base Q2
6) Collector Q1

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