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

SURFACE MOUNT
ULTRAmini™
DUAL SMALL SIGNAL SILICON
SWITCHING TRANSISTORS

ULTRAmini™

SOT-363

Central™
Semiconductor Corp.

FEATURES:

- ULTRAmini™ SPACE SAVING PACKAGE
- TWO NPN (3904) or TWO PNP (3906) TRANSISTORS IN A SINGLE PACKAGE
- COMPLEMENTARY, ONE NPN (3904) and ONE PNP (3906) TRANSISTOR IN A SINGLE PACKAGE.

MARKING CODES:

CMKT3904: K04
CMKT3906: K06
CMKT3946: K46

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.

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
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: (T_A=25°C unless otherwise noted)

		NPN		PNP		
SYMBOL	TEST CONDITIONS	MIN	MAX	MIN	MAX	UNIT
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		V
BV_{CEO}	I_C=1.0mA	40		40		V
BV_{EBO}	I_E=10μA	6.0		5.0		V
$V_{CE(SAT)}$	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		

R2 (13-November 2002)

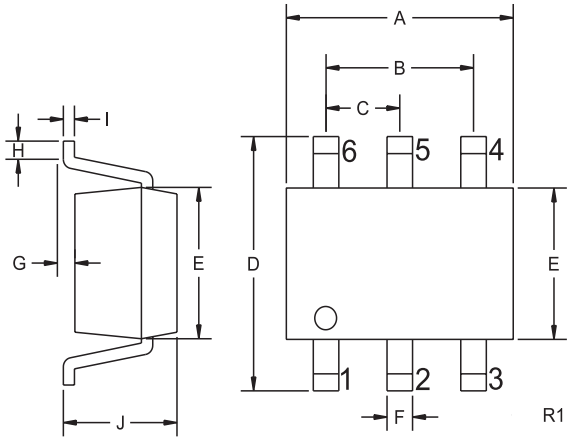
Central™
Semiconductor Corp.

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

SURFACE MOUNT ULTRAmini™ DUAL SMALL SIGNAL SILICON SWITCHING TRANSISTORS

		NPN		PNP		
SYMBOL	**TEST CONDITIONS**	**MIN**	**MAX**	**MIN**	**MAX**	**UNIT**
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
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	μmhos
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 - MECHANICAL OUTLINE

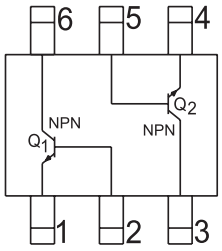


DIMENSIONS				
	INCHES		MILLIMETERS	
SYMBOL	MIN	MAX	MIN	MAX
A	0.073	0.085	1.85	2.15
B	0.051		1.30	
C	0.026		0.65	
D	0.075	0.091	1.90	2.30
E	0.043	0.055	1.10	1.40
F	0.006	0.012	0.15	0.30
G	0.000	0.004	0.00	0.10
H	0.010	-	0.25	-
I	0.004	0.010	0.10	0.25
J	0.031	0.039	0.80	1.00

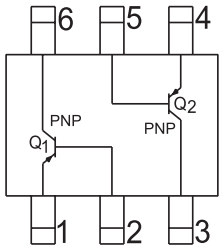
SOT-363 (REV: R1)

MARKING CODES:
CMKT3904 K04
CMKT3906 K06
CMKT3946 K46

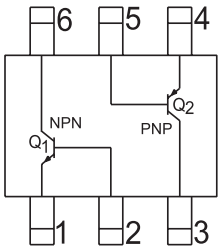
CMKT3904



CMKT3906



CMKT3946



LEAD CODE
1) EMITTER Q1
2) BASE Q1
3) COLLECTOR Q2
4) EMITTER Q2
5) BASE Q2
6) COLLECTOR Q1

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