

CMKT3904 NPN
CMKT3906 PNP
CMKT3946 NPN/PNP

ULTRAmi™
DUAL SMALL SIGNAL
SWITCHING TRANSISTOR

ULTRAmi™



SOT-363

Central™
Semiconductor Corp.

FEATURES:

- SPACE SAVING ULTRAmi™ FAMILY
- TWO NPN OR TWO PNP TRANSISTORS IN A SINGLE PACKAGE
- COMPLEMENTARY, ONE NPN AND ONE PNP TRANSISTOR IN A SINGLE PACKAGE

Marking Codes:

CMKT3904 K40
CMKT3906 K60
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 ULTRAmi™ package, designed for small signal general purpose amplifier and switching applications.

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

	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		$^\circ\text{C}$
Thermal Resistance	θ_{JA}	357		$^\circ\text{C/W}$

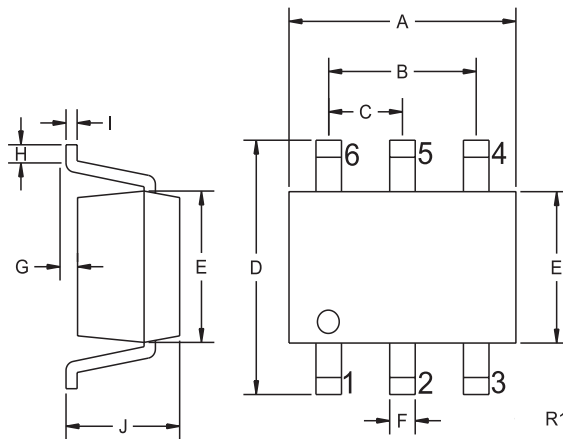
ELECTRICAL CHARACTERISTICS: ($T_A=25^\circ\text{C}$ unless otherwise noted)

SYMBOL	TEST CONDITIONS	NPN		PNP		UNIT
		MIN	MAX	MIN	MAX	
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}	$I_C=10\mu A$	60		40		V
BV_{CEO}	$I_C=1.0mA$	40		40		V
BV_{EBO}	$I_E=10\mu A$	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		

R0 (11-October 2001)

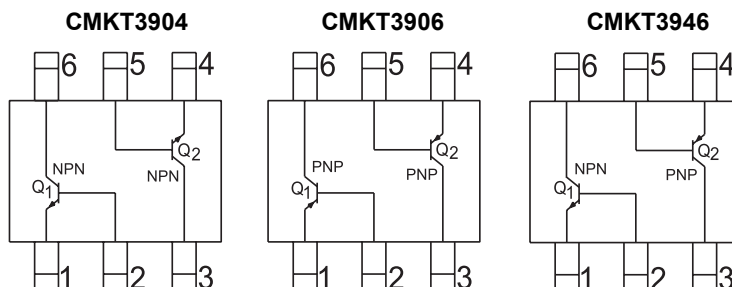
SYMBOL	TEST CONDITIONS	NPN		PNP		UNIT
		MIN	MAX	MIN	MAX	
f_T	$V_{CE}=20V, I_C=10mA, f=100MHz$	300		250		MHz
C_{ob}	$V_{CB}=5.0V, I_E=0, f=1.0MHz$		4.0		4.5	pF
C_{ib}	$V_{BE}=0.5V, I_C=0, f=1.0MHz$		8.0		10	pF
h_{ie}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	1.0	10	2.0	12	k Ω
h_{re}	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	0.5	8.0	0.1	10	$\times 10^{-4}$
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	$\mu mhos$
NF	$V_{CE}=5.0V, I_C=100\mu A, R_S=1.0k\Omega$ $f=10Hz$ 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



SYMBOL	DIMENSIONS			
	INCHES		MILLIMETERS	
	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)



LEAD CODE

- 1) Emitter Q1
- 2) Base Q1
- 3) Collector Q2
- 4) Emitter Q2
- 5) Base Q2
- 6) Collector Q1