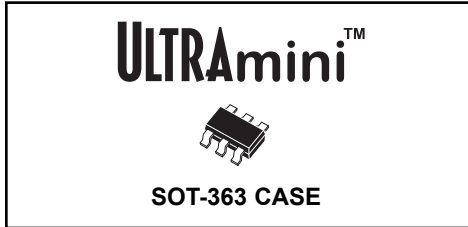


**CMKT2207**  
**ULTRAmi™**  
**SURFACE MOUNT**  
**COMPLEMENTARY TRANSISTORS**



# Central™

**Semiconductor Corp.**

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CMKT2207 type is a dual complementary silicon transistor manufactured by the epitaxial planar process, epoxy molded in a ULTRAmi™ surface mount package, designed for small signal general purpose and switching applications.

**Marking Code is K70.**

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

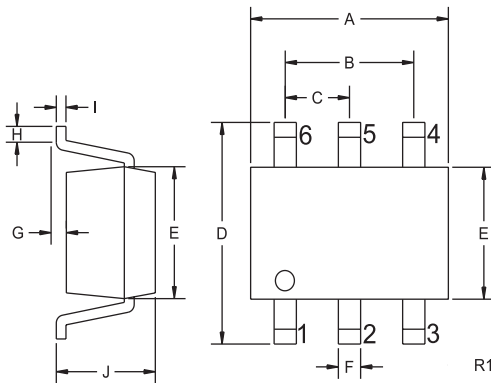
	<u>SYMBOL</u>	<u>NPN (Q1)</u>	<u>PNP (Q2)</u>	<u>UNITS</u>
Collector-Base Voltage	$V_{CB0}$	75	60	V
Collector-Emitter Voltage	$V_{CEO}$	40	60	V
Emitter-Base Voltage	$V_{EBO}$	6.0	5.0	V
Collector Current	$I_C$		600	mA
Power Dissipation	$P_D$		350	mW
Operating and Storage Junction Temperature	$T_J, T_{stg}$	-65 to +150		$^\circ\text{C}$
Thermal Resistance	$\Theta_{JA}$	357		$^\circ\text{C/W}$

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

<u>SYMBOL</u>	<u>TEST CONDITIONS</u>	<u>NPN (Q1)</u>		<u>PNP (Q2)</u>		<u>UNITS</u>
		<u>MIN</u>	<u>MAX</u>	<u>MIN</u>	<u>MAX</u>	
$I_{CBO}$	$V_{CB}=60\text{V}$	-	10	-	-	nA
$I_{CBO}$	$V_{CB}=50\text{V}$	-	-	-	10	nA
$I_{CBO}$	$V_{CB}=60\text{V}, T_A=125^\circ\text{C}$	-	10	-	-	nA
$I_{CBO}$	$V_{CB}=50\text{V}, T_A=125^\circ\text{C}$	-	-	-	10	nA
$I_{EBO}$	$V_{EB}=3.0\text{V}$	-	10	-	-	nA
$I_{CEV}$	$V_{CE}=60\text{V}, V_{EB(OFF)}=3.0\text{V}$	-	10	-	-	nA
$I_{CEV}$	$V_{CE}=30\text{V}, V_{EB(OFF)}=500\text{mV}$	-	-	-	50	nA
$BV_{CBO}$	$I_C=10\mu\text{A}$	75	-	60	-	V
$BV_{CEO}$	$I_C=10\text{mA}$	40	-	60	-	V
$BV_{EBO}$	$I_E=10\mu\text{A}$	6.0	-	5.0	-	V
$V_{CE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$	-	0.3	-	0.4	V
$V_{CE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$	-	1.0	-	1.6	V
$V_{BE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$	0.6	1.2	-	1.3	V
$V_{BE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$	-	2.0	-	2.6	V
$h_{FE}$	$V_{CE}=10\text{V}, I_C=0.1\text{mA}$	35	-	75	-	
$h_{FE}$	$V_{CE}=10\text{V}, I_C=1.0\text{mA}$	50	-	100	-	
$h_{FE}$	$V_{CE}=10\text{V}, I_C=10\text{mA}$	75	-	100	-	
$h_{FE}$	$V_{CE}=10\text{V}, I_C=150\text{mA}$	100	300	100	300	
$h_{FE}$	$V_{CE}=1.0\text{V}, I_C=150\text{mA}$	50	-	-	-	
$h_{FE}$	$V_{CE}=10\text{V}, I_C=500\text{mA}$	40	-	50	-	

SYMBOL	TEST CONDITIONS	NPN (Q1)		PNP (Q2)		UNITS
		MIN	MAX	MIN	MAX	
$f_T$	$V_{CE}=20V, I_C=20mA, f=100MHz$	300	-	-	-	MHz
$f_T$	$V_{CE}=20V, I_C=50mA, f=100MHz$	-	-	200	-	MHz
$C_{ob}$	$V_{CB}=10V, I_E=0, f=1.0MHz$	-	8.0	-	8.0	pF
$C_{ib}$	$V_{EB}=0.5V, I_C=0, f=1.0MHz$	-	25	-	-	pF
$C_{ib}$	$V_{EB}=2.0V, I_C=0, f=1.0MHz$	-	-	-	30	pF
$h_{ie}$	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	2.0	8.0	-	-	k $\Omega$
$h_{ie}$	$V_{CE}=10V, I_C=10mA, f=1.0kHz$	0.25	1.25	-	-	k $\Omega$
$h_{re}$	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	-	8.0	-	-	x10-4
$h_{re}$	$V_{CE}=10V, I_C=10mA, f=1.0kHz$	-	4.0	-	-	x10-4
$h_{fe}$	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	50	300	-	-	
$h_{fe}$	$V_{CE}=10V, I_C=10mA, f=1.0kHz$	75	375	-	-	
$h_{oe}$	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	5.0	35	-	-	$\mu$ mhos
$h_{oe}$	$V_{CE}=10V, I_C=10mA, f=1.0kHz$	25	200	-	-	$\mu$ mhos
$rb/C_c$	$V_{CB}=10V, I_E=20mA, f=31.8MHz$	-	150	-	-	ps
NF	$V_{CE}=10V, I_C=100\mu A, R_S=1.0k\Omega, f=1.0kHz$	-	4.0	-	-	dB
$t_{on}$	$V_{CC}=30V, V_{BE}=0.5V, I_C=150mA, I_{B1}=15mA$	-	-	-	45	ns
$t_d$	$V_{CC}=30V, V_{BE}=0.5V, I_C=150mA, I_{B1}=15mA$	-	10	-	10	ns
$t_r$	$V_{CC}=30V, V_{BE}=0.5V, I_C=150mA, I_{B1}=15mA$	-	25	-	40	ns
$t_{off}$	$V_{CC}=6.0V, I_C=150mA, I_{B1}=I_{B2}=15mA$	-	-	-	100	ns
$t_s$	$V_{CC}=30V, I_C=150mA, I_{B1}=I_{B2}=15mA$	-	225	-	-	ns
$t_s$	$V_{CC}=6.0V, I_C=150mA, I_{B1}=I_{B2}=15mA$	-	-	-	80	ns
$t_f$	$V_{CC}=30V, I_C=150mA, I_{B1}=I_{B2}=15mA$	-	60	-	-	ns
$t_f$	$V_{CC}=6.0V, I_C=150mA, I_{B1}=I_{B2}=15mA$	-	-	-	30	ns

### SOT-363 CASE - 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			
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   | Q1 = NPN |
| 2) Base Q1      | Q2 = PNP |
| 3) Collector Q2 |          |
| 4) Emitter Q2   |          |
| 5) Base Q2      |          |
| 6) Collector Q1 |          |

R0 ( 9-October 2001)