

CMKT2207

**SURFACE MOUNT  
COMPLEMENTARY SILICON  
TRANSISTORS**

ULTRAmulti™



SOT-363 CASE



www.centrasemi.com

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CMKT2207 consists of one 2222A NPN transistor and an individually isolated complementary 2907A PNP transistor, manufactured by the epitaxial planar process and epoxy molded in an SOT-363 surface mount package. This ULTRAmulti™ device has been designed for small signal general purpose and switching applications.

**MARKING CODE: K70**

**MAXIMUM RATINGS:** (T<sub>A</sub>=25°C)

Collector-Base Voltage	V <sub>CBO</sub>	75	60	V
Collector-Emitter Voltage	V <sub>CEO</sub>	40	60	V
Emitter-Base Voltage	V <sub>EBO</sub>	6.0	5.0	V
Continuous Collector Current	I <sub>C</sub>	600		mA
Power Dissipation	P <sub>D</sub>	350		mW
Operating and Storage Junction Temperature	T <sub>J</sub> , T <sub>stg</sub>	-65 to +150		°C
Thermal Resistance	θ <sub>JA</sub>	357		°C/W

SYMBOL	NPN (Q1)	PNP (Q2)	UNITS
V <sub>CBO</sub>	75	60	V
V <sub>CEO</sub>	40	60	V
V <sub>EBO</sub>	6.0	5.0	V
I <sub>C</sub>	600		mA
P <sub>D</sub>	350		mW
T <sub>J</sub> , T <sub>stg</sub>	-65 to +150		°C
θ <sub>JA</sub>	357		°C/W

**ELECTRICAL CHARACTERISTICS PER TRANSISTOR:** (T<sub>A</sub>=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	NPN (Q1)		PNP (Q2)		UNITS
		MIN	MAX	MIN	MAX	
I <sub>CBO</sub>	V <sub>CB</sub> =60V	-	10	-	-	nA
I <sub>CBO</sub>	V <sub>CB</sub> =50V	-	-	-	10	nA
I <sub>CBO</sub>	V <sub>CB</sub> =60V, T <sub>A</sub> =125°C	-	10	-	-	μA
I <sub>CBO</sub>	V <sub>CB</sub> =50V, T <sub>A</sub> =125°C	-	-	-	10	μA
I <sub>EBO</sub>	V <sub>EB</sub> =3.0V	-	10	-	-	nA
I <sub>CEV</sub>	V <sub>CE</sub> =60V, V <sub>EB(OFF)</sub> =3.0V	-	10	-	-	nA
I <sub>CEV</sub>	V <sub>CE</sub> =30V, V <sub>EB(OFF)</sub> =500mV	-	-	-	50	nA
BV <sub>CBO</sub>	I <sub>C</sub> =10μA	75	-	60	-	V
BV <sub>CEO</sub>	I <sub>C</sub> =10mA	40	-	60	-	V
BV <sub>EBO</sub>	I <sub>E</sub> =10μA	6.0	-	5.0	-	V
V <sub>CE(SAT)</sub>	I <sub>C</sub> =150mA, I <sub>B</sub> =15mA	-	0.3	-	0.4	V
V <sub>CE(SAT)</sub>	I <sub>C</sub> =500mA, I <sub>B</sub> =50mA	-	1.0	-	1.6	V
V <sub>BE(SAT)</sub>	I <sub>C</sub> =150mA, I <sub>B</sub> =15mA	0.6	1.2	-	1.3	V
V <sub>BE(SAT)</sub>	I <sub>C</sub> =500mA, I <sub>B</sub> =50mA	-	2.0	-	2.6	V
h <sub>FE</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =0.1mA	35	-	75	-	
h <sub>FE</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =1.0mA	50	-	100	-	
h <sub>FE</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =10mA	75	-	100	-	
h <sub>FE</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =150mA	100	300	100	300	
h <sub>FE</sub>	V <sub>CE</sub> =1.0V, I <sub>C</sub> =150mA	50	-	-	-	
h <sub>FE</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =500mA	40	-	50	-	
f <sub>T</sub>	V <sub>CE</sub> =20V, I <sub>C</sub> =20mA, f=100MHz	300	-	-	-	MHz
f <sub>T</sub>	V <sub>CE</sub> =20V, I <sub>C</sub> =50mA, f=100MHz	-	-	200	-	MHz
C <sub>ob</sub>	V <sub>CB</sub> =10V, I <sub>E</sub> =0, f=1.0MHz	-	8.0	-	8.0	pF
C <sub>ib</sub>	V <sub>EB</sub> =0.5V, I <sub>C</sub> =0, f=1.0MHz	-	25	-	-	pF

R5 (26-January 2018)

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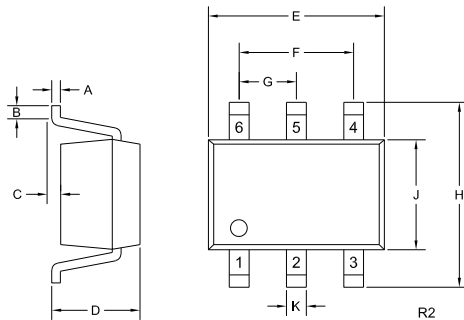
**SURFACE MOUNT  
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**ELECTRICAL CHARACTERISTICS PER TRANSISTOR - Continued: ( $T_A=25^\circ\text{C}$ )**

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

**SOT-363 CASE - MECHANICAL OUTLINE**



SYMBOL	DIMENSIONS			
	INCHES		MILLIMETERS	
	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)

**LEAD CODE:**

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

**MARKING CODE: K70**

R5 (26-January 2018)

## OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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### PRODUCT SUPPORT

Central's operations team provides the highest level of support to insure product is delivered on-time.

- Supply management (Customer portals)
- Inventory bonding
- Consolidated shipping options
- Custom bar coding for shipments
- Custom product packing

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### DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

- Free quick ship samples (2<sup>nd</sup> day air)
- Online technical data and parametric search
- SPICE models
- Custom electrical curves
- Environmental regulation compliance
- Customer specific screening
- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

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### REQUESTING PRODUCT PLATING

1. If requesting Tin/Lead plated devices, add the suffix "TIN/LEAD" to the part number when ordering (example: 2N2222A TIN/LEAD).
2. If requesting Lead (Pb) Free plated devices, add the suffix "PBFREE" to the part number when ordering (example: 2N2222A PBFREE).

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### CONTACT US

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