

CMKT5089M10

**SURFACE MOUNT  
DUAL NPN SILICON  
MATCHED  $h_{FE}$  TRANSISTORS**

ULTRAm<sup>TM</sup>ini



**SOT-363 CASE**



www.centrasemi.com

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CMKT5089M10 consists of two (2) individually isolated 5089 NPN silicon transistors with matched  $h_{FE}$ . This ULTRAm<sup>TM</sup>ini device is manufactured by the epitaxial planar process and epoxy molded in an SOT-363 surface mount package. The CMKT5089M10 has been designed for applications requiring high gain and low noise.

**MARKING CODE: C9M0**

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

Collector-Base Voltage	
Collector-Emitter Voltage	
Emitter-Base Voltage	
Continuous Collector Current	
Power Dissipation	
Operating and Storage Junction Temperature	
Thermal Resistance	

SYMBOL		UNITS
$V_{CBO}$	30	V
$V_{CEO}$	25	V
$V_{EBO}$	4.5	V
$I_C$	50	mA
$P_D$	350	mW
$T_J, T_{stg}$	-65 to +150	$^\circ\text{C}$
$\theta_{JA}$	357	$^\circ\text{C/W}$

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

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
$I_{CBO}$	$V_{CB}=15\text{V}$		50	nA
$I_{EBO}$	$V_{EB}=4.5\text{V}$		100	nA
$BV_{CBO}$	$I_C=100\mu\text{A}$	30		V
$BV_{CEO}$	$I_C=1.0\text{mA}$	25		V
$BV_{EBO}$	$I_E=100\mu\text{A}$	4.5		V
$V_{CE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$		0.5	V
$V_{BE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$		0.8	V
$h_{FE}$	$V_{CE}=5.0\text{V}, I_C=0.1\text{mA}$	400	1200	
$h_{FE}$	$V_{CE}=5.0\text{V}, I_C=1.0\text{mA}$	450		
$h_{FE}$	$V_{CE}=5.0\text{V}, I_C=10\text{mA}$	400		
$f_T$	$V_{CE}=5.0\text{V}, I_C=500\mu\text{A}, f=20\text{MHz}$	50		MHz
$C_{ob}$	$V_{CB}=5.0\text{V}, I_E=0, f=1.0\text{MHz}$		4.0	pF
$C_{ib}$	$V_{BE}=0.5\text{V}, I_C=0, f=1.0\text{MHz}$		10	pF
$h_{fe}$	$V_{CE}=5.0\text{V}, I_C=1.0\text{mA}, f=1.0\text{kHz}$	450	1800	
NF	$V_{CE}=5.0\text{V}, I_C=100\mu\text{A}, R_S=1.0\text{k}\Omega,$ $f=10\text{Hz to } 15.7\text{kHz}$		2.0	dB

**MATCHING CHARACTERISTICS:**

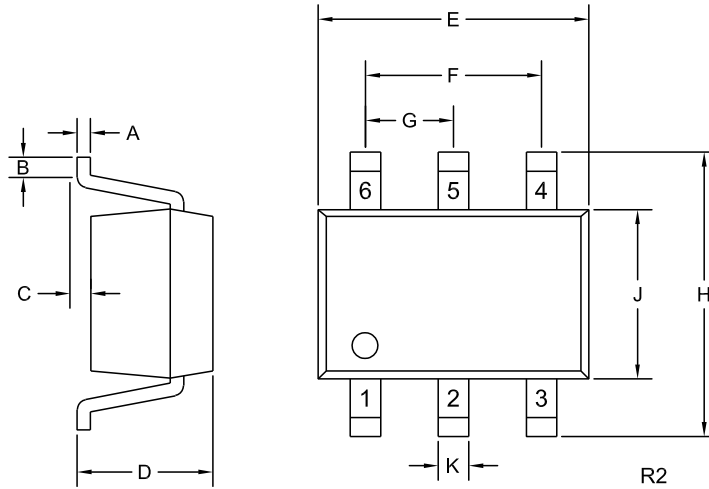
SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
$h_{FE1}/h_{FE2}^*$	$V_{CE}=5.0\text{V}, I_C=1.0\text{mA}$	0.9	1.0	
$ V_{BE1}-V_{BE2} $	$V_{CE}=5.0\text{V}, I_C=100\mu\text{A}$		5.0	mV

\* The lowest  $h_{FE}$  reading is taken as  $h_{FE1}$ .

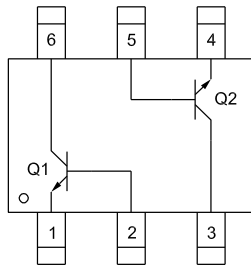
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**SOT-363 CASE - MECHANICAL OUTLINE**



**PIN CONFIGURATION**



**LEAD CODE:**

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

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**DIMENSIONS**

SYMBOL	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)

R4 (13-January 2010)