

CMKT5089M10

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

ULTRAmTMini



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

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

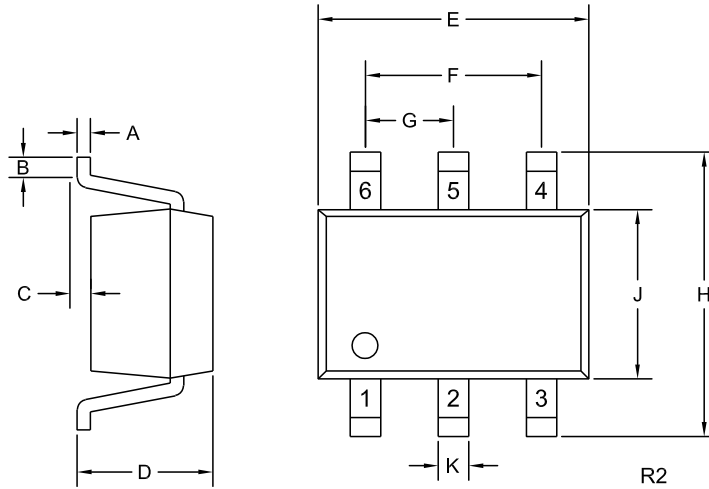
* The lowest h_{FE} reading is taken as h_{FE1} .

R4 (13-January 2010)

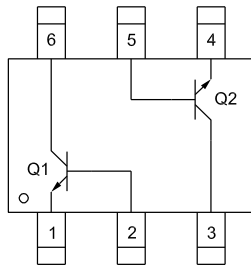
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SOT-363 CASE - MECHANICAL OUTLINE



PIN CONFIGURATION



LEAD CODE:

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

MARKING CODE: C9M0

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)

OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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

DESIGNER SUPPORT/SERVICES

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

- Free quick ship samples (2nd 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

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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