

# MSKSEMI

SEMICONDUCTOR



ESD



TVS



TSS



MOV



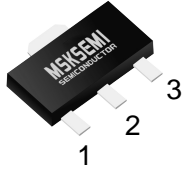
GDT



PLED

Product data sheet

[www.msksemi.com](http://www.msksemi.com)

**SOT-89**


1. BASE
2. COLLECTOR
3. EMITTER

**FEATURE**

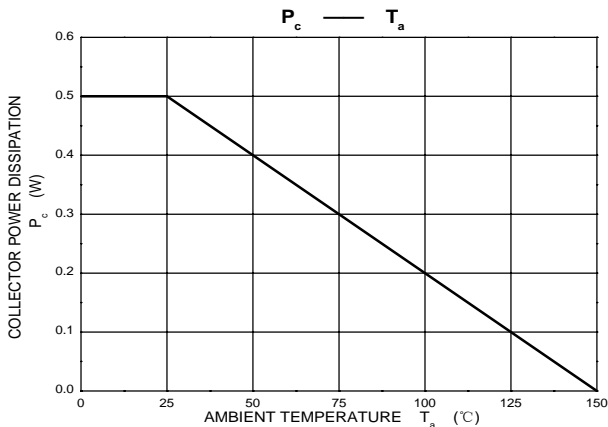
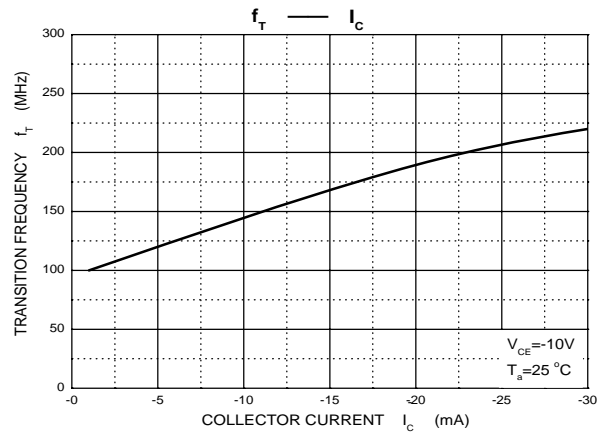
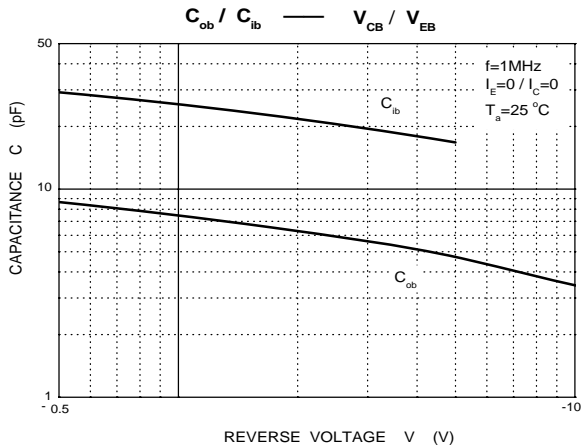
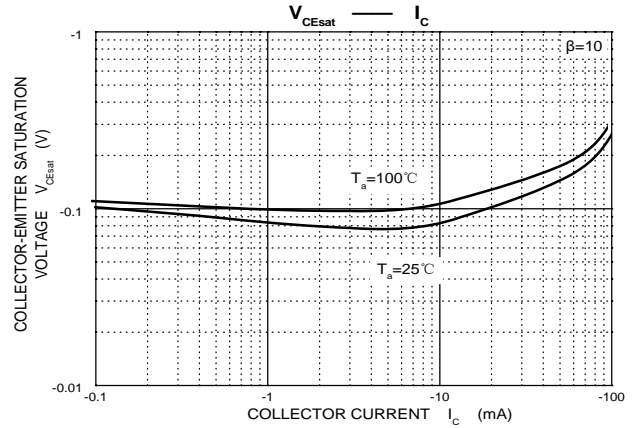
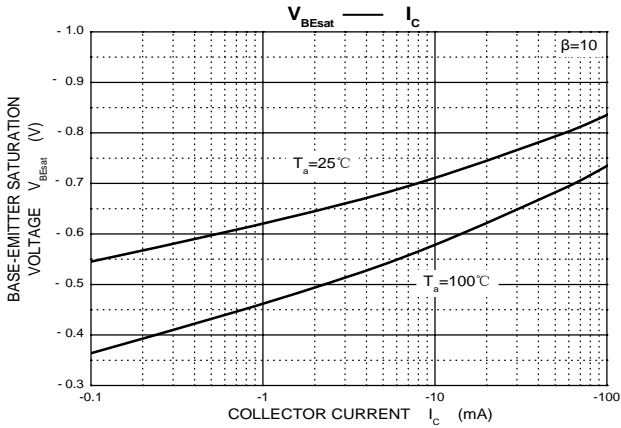
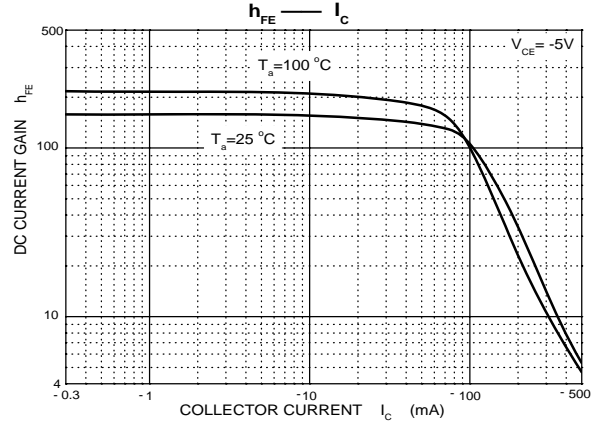
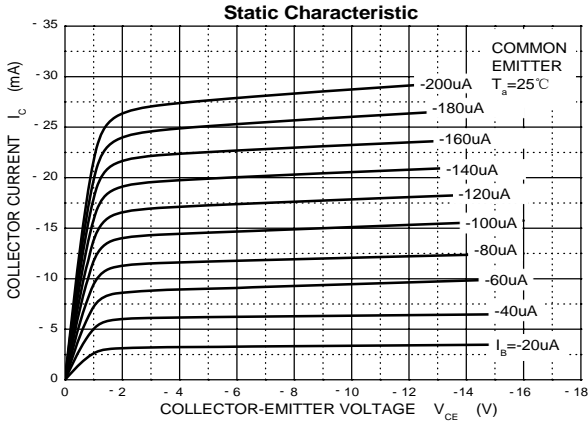
- Switching and amplification in high voltage Applications such as telephony
- Low current(max. 500mA)
- High voltage(max.160v)

**MAXIMUM RATINGS (T<sub>a</sub>=25°C unless otherwise noted)**

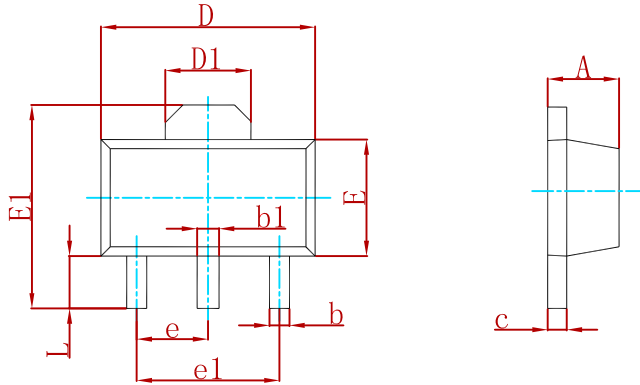
Symbol	Parameter	Value	Unit
V <sub>CBO</sub>	Collector-Base Voltage	-160	V
V <sub>CEO</sub>	Collector-Emitter Voltage	-150	V
V <sub>EBO</sub>	Emitter-Base Voltage	-5	V
I <sub>C</sub>	Collector Current -Continuous	-0.5	A
P <sub>C</sub>	Collector Power Dissipation	0.5	W
R <sub>θJA</sub>	Thermal Resistance From Junction To Ambient	250	°C/W
T <sub>J</sub> ,T <sub>stg</sub>	Operation Junction and Storage Temperature Range	-55~150	°C

**ELECTRICAL CHARACTERISTICS(T<sub>a</sub>=25°C unless otherwise specified)**

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V <sub>(BR)CBO</sub>	I <sub>C</sub> = -100μA, I <sub>E</sub> =0	-160			V
Collector-emitter breakdown voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> = -1mA, I <sub>B</sub> =0	-150			V
Emitter-base breakdown voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> = -10μA, I <sub>C</sub> =0	-5			V
Collector cut-off current	I <sub>CBO</sub>	V <sub>CB</sub> = -120 V, I <sub>E</sub> =0			-50	nA
Emitter cut-off current	I <sub>EBO</sub>	V <sub>EB</sub> = -3V, I <sub>C</sub> =0			-50	nA
DC current gain	h <sub>FE(1)</sub>	V <sub>CE</sub> = -5V, I <sub>C</sub> =-1 mA	50			
	h <sub>FE(2)</sub>	V <sub>CE</sub> = -5V, I <sub>C</sub> = -10 mA	100		300	
	h <sub>FE(3)</sub>	V <sub>CE</sub> = -5V, I <sub>C</sub> =-50 mA	50			
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> = -10 mA, I <sub>B</sub> = -1 mA			-0.2	V
	V <sub>CE(sat)</sub>	I <sub>C</sub> = -50 mA, I <sub>B</sub> = -5 mA			-0.5	V
Base-emitter saturation voltage	V <sub>BE(sat)</sub>	I <sub>C</sub> = -10 mA, I <sub>B</sub> = -1 mA			-1	V
	V <sub>BE(sat)</sub>	I <sub>C</sub> = -50 mA, I <sub>B</sub> = -5 mA			-1	V
Transition frequency	f <sub>T</sub>	V <sub>CE</sub> = -10V, I <sub>C</sub> = -10mA, f = 100MHz	100		300	MHz
Output Capacitance	C <sub>ob</sub>	V <sub>CB</sub> =-10V, I <sub>E</sub> = 0, f=1MHz			6	pF
Noise Figure	NF	V <sub>CE</sub> = -5.0V, I <sub>C</sub> = -200μA, R <sub>S</sub> = 10Ω, f =10Hz to15.7kHz			8	dB

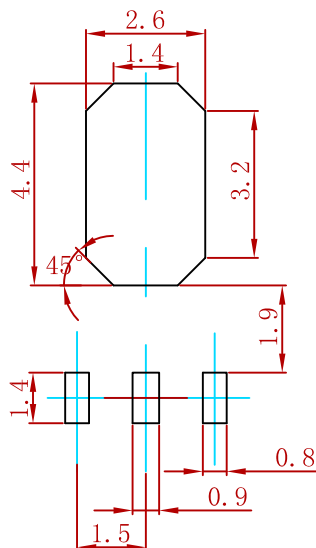


**PACKAGE MECHANICAL DATA**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF.		0.061 REF.	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP.		0.060 TYP.	
e1	3.000 TYP.		0.118 TYP.	
L	0.900	1.200	0.035	0.047

**Suggested Pad Layout**



Note:  
 1. Controlling dimension: in millimeters.  
 2. General tolerance:  $\pm 0.05\text{mm}$ .  
 3. The pad layout is for reference purposes only.

**REEL SPECIFICATION**

P/N	PKG	QTY
CXT5401	SOT-89	1000

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