

MSKSEMI

SEMICONDUCTOR



ESD



TVS



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MOV



GDT

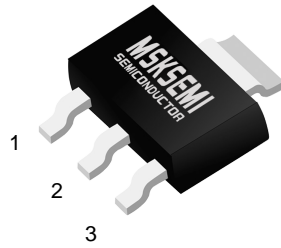


PLED

Product data sheet

SOT-223

- 1. BASE
- 2. COLLECTOR
- 3. EMITTER



PNP Transistors

■ Features

- Collector Current Capability $I_C = -4A$
- Collector Emitter Voltage $V_{CE0} = -140V$
- Very low saturation voltages

Absolute Maximum Ratings $T_a = 25^\circ C$

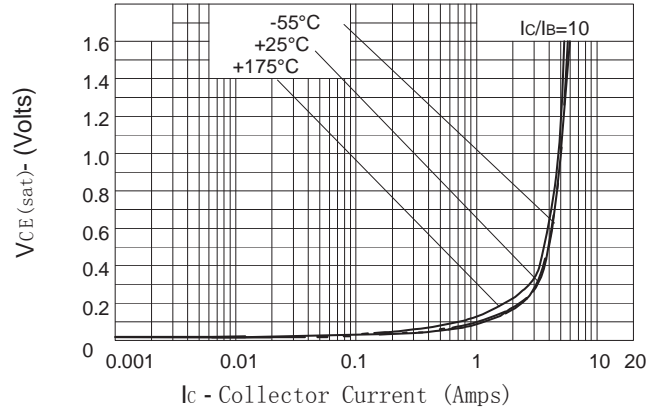
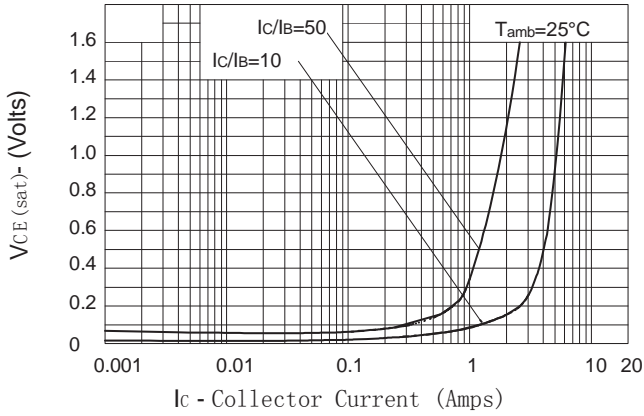
Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CB0}	-180	V
Collector - Emitter Voltage	V_{CE0}	-140	
Emitter - Base Voltage	V_{EB0}	-6	
Collector Current - Continuous	I_C	-4	A
Peak Pulse Current	I_{CM}	-10	
Collector Power Dissipation	P_C	3	W
Thermal Resistance, Junction to Ambient (Note 1)	$R_{\theta JA}$	78	$^\circ C/W$
Operating and Storage Temperature Range	T_J, T_{stg}	-55 to 150	$^\circ C$

Note 1: For a device mounted with the collector lead on 25mm x 25mm 1oz copper that is on a single-sided 1.6mm FR4 PCB; device is measured under still air conditions whilst operating in steady-state.

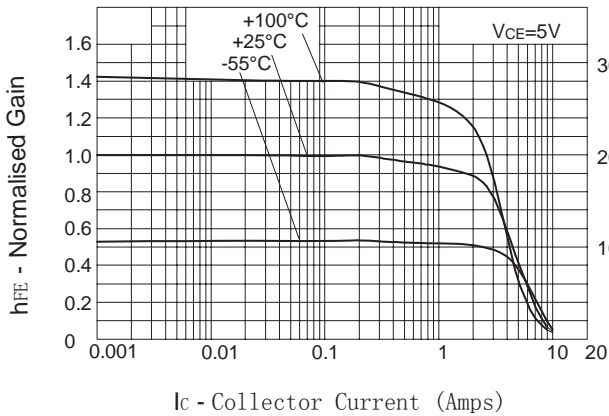
Electrical Characteristics $T_a = 25^\circ C$

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V_{CB0}	$I_C = -100 \mu A, I_E = 0$	-180			V
Collector- emitter breakdown voltage	V_{CER}	$I_C = -1 \mu A, R_B \leq 1k\Omega$	-180			
Collector- emitter breakdown voltage	V_{CE0}	$I_C = -10 mA, I_B = 0$	-140			
Emitter - base breakdown voltage	V_{EB0}	$I_E = -100 \mu A, I_C = 0$	-6			
Collector-base cut-off current	I_{CBO}	$V_{CB} = -150 V, I_E = 0$			-50	nA
		$V_{CB} = -150 V, I_E = 0, T_a = 100^\circ C$			-1	μA
Collector cut-off current $R < 1k\Omega$	I_{CER}	$V_{CE} = -150 V, I_E = 0$			-50	nA
		$V_{CE} = -150 V, I_E = 0, T_a = 100^\circ C$			-1	μA
Emitter cut-off current	I_{EBO}	$V_{EB} = -6V, I_C = 0$			-10	nA
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -100 mA, I_B = -5 mA$			-60	mV
		$I_C = -500 mA, I_B = -50 mA$			-120	
		$I_C = -1 A, I_B = -100 mA$			-150	
		$I_C = -3 A, I_B = -300 mA$			-370	
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C = -3 A, I_B = -300 mA$			-1110	
Base - emitter turn-on voltage	$V_{BE(on)}$	$V_{CE} = -5V, I_C = -3A$			-950	
DC current gain	h_{FE}	$V_{CE} = -5V, I_C = -10 mA$	100			
		$V_{CE} = -5V, I_C = -1 A$	100		300	
		$V_{CE} = -5V, I_C = -3 A$	75			
		$V_{CE} = -5V, I_C = -10 A$		10		
Switching Times	t_{on}	$I_C = -1A, I_{B1} = -100 mA$		68		ns
	t_{off}	$I_{B2} = 100 mA, V_{CC} = -50V$		1030		
Collector output capacitance	C_{ob}	$V_{CB} = -20V, f = 1 MHz$		40		pF
Transition frequency	f_T	$V_{CE} = -10V, I_C = -100 mA, f = 50 MHz$		110		MHz

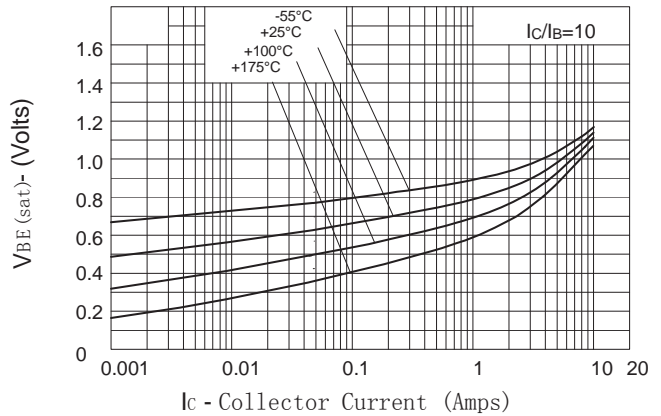
Typical Characteristics



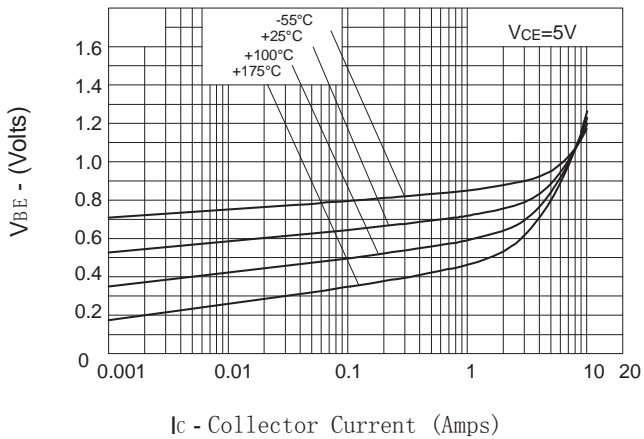
$V_{CE(sat)}$ v I_C



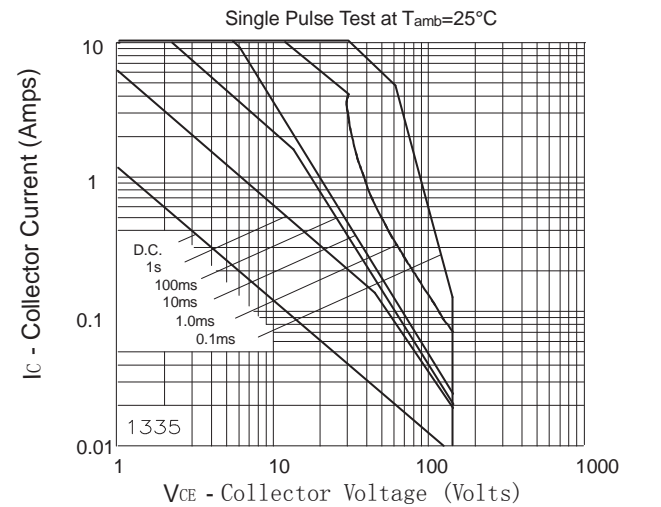
$V_{CE(sat)}$ v I_C



h_{FE} v I_C



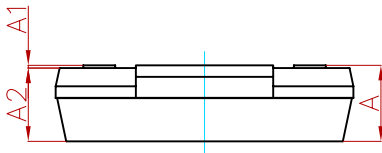
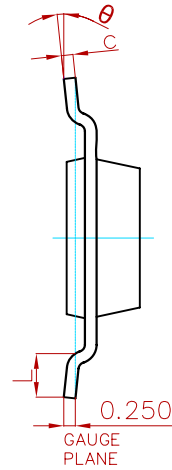
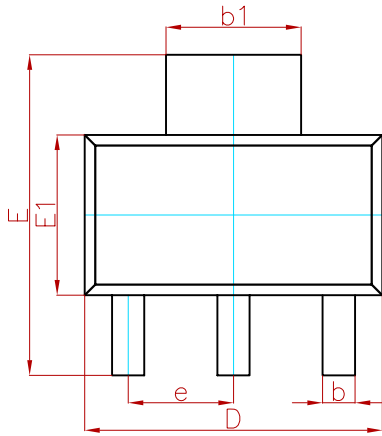
$V_{BE(sat)}$ v I_C



$V_{BE(on)}$ v I_C

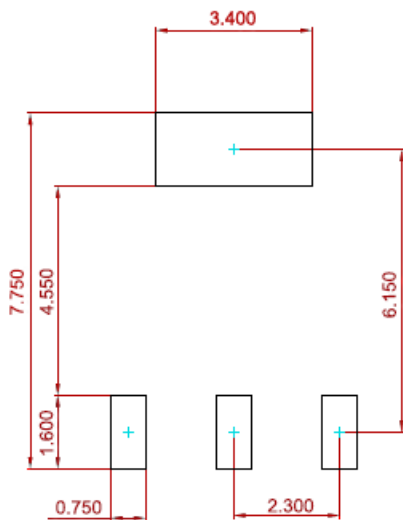
Safe Operating Area

PACKAGE MECHANICAL DATA



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	—	1.800	—	0.071
A1	0.020	0.100	0.001	0.004
A2	1.500	1.700	0.059	0.067
b	0.660	0.840	0.026	0.033
b1	2.900	3.100	0.114	0.122
c	0.230	0.350	0.009	0.014
D	6.300	6.700	0.248	0.264
E	6.700	7.300	0.264	0.287
E1	3.300	3.700	0.130	0.146
e	2.300(BSC)		0.091(BSC)	
L	0.750	—	0.030	—
θ	0°	10°	0°	10°

Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: ±0.050mm.
3. The pad layout is for reference purposes only.

REEL SPECIFICATION

P/N	PKG	QTY
FZT955-MS	SOT-223	1000

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