

# MSKSEMI

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT

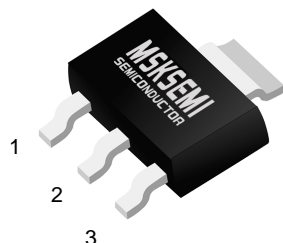


PLED

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 $T_a = 25^\circ C$

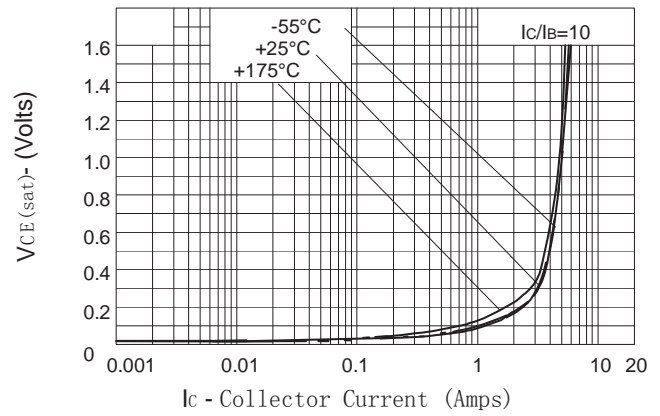
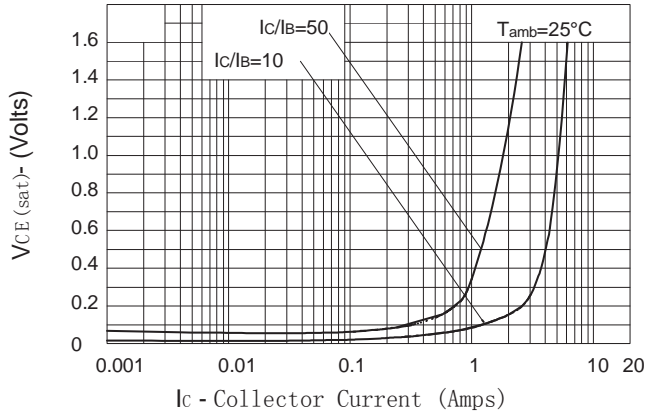
Parameter	Symbol	Rating	Unit
Collector - Base Voltage	$V_{CBO}$	-180	V
Collector - Emitter Voltage	$V_{CEO}$	-140	
Emitter - Base Voltage	$V_{EBO}$	-6	
Collector Current - Continuous	$I_C$	-4	A
Peak Pulse Current	$I_{CM}$	-10	
Collector Power Dissipation	$P_C$	3	W
Thermal Resistance, Junction to Ambient (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.

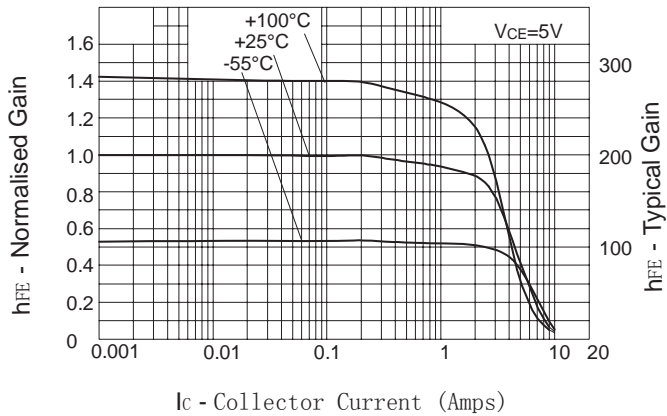
### Electrical Characteristics $T_a = 25^\circ C$

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	$V_{CBO}$	$I_C = -100 \mu A, I_E = 0$	-180			V
Collector- emitter breakdown voltage	$V_{CER}$	$I_C = -1 \mu A, R_B \leq 1k\Omega$	-180			
Collector- emitter breakdown voltage	$V_{CEO}$	$I_C = -10 mA, I_B = 0$	-140			
Emitter - base breakdown voltage	$V_{EBO}$	$I_E = -100 \mu A, I_C = 0$	-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	$\mu A$
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	$\mu A$
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

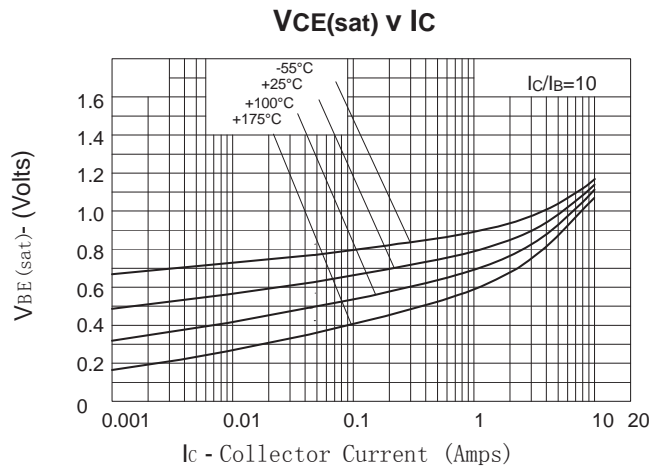
### Typical Characteristics



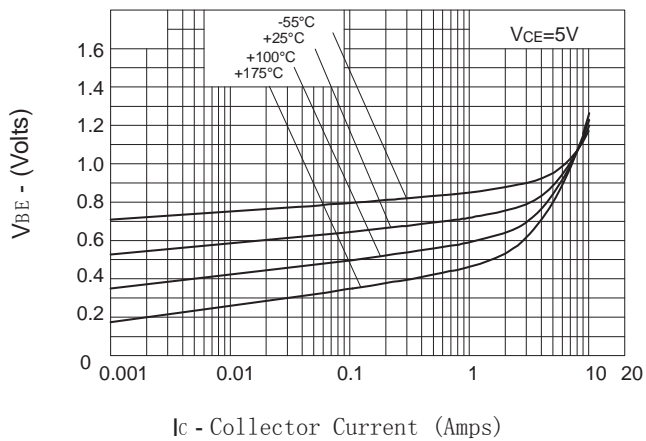
### $V_{CE(sat)}$ v $I_C$



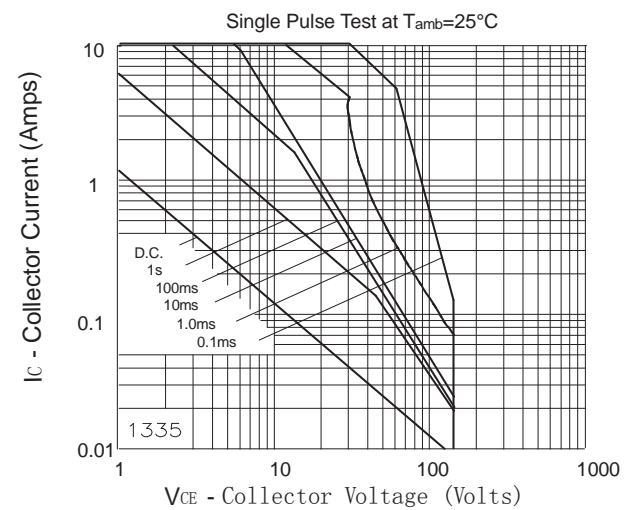
### $h_{FE}$ v $I_C$



### $V_{BE(sat)}$ v $I_C$

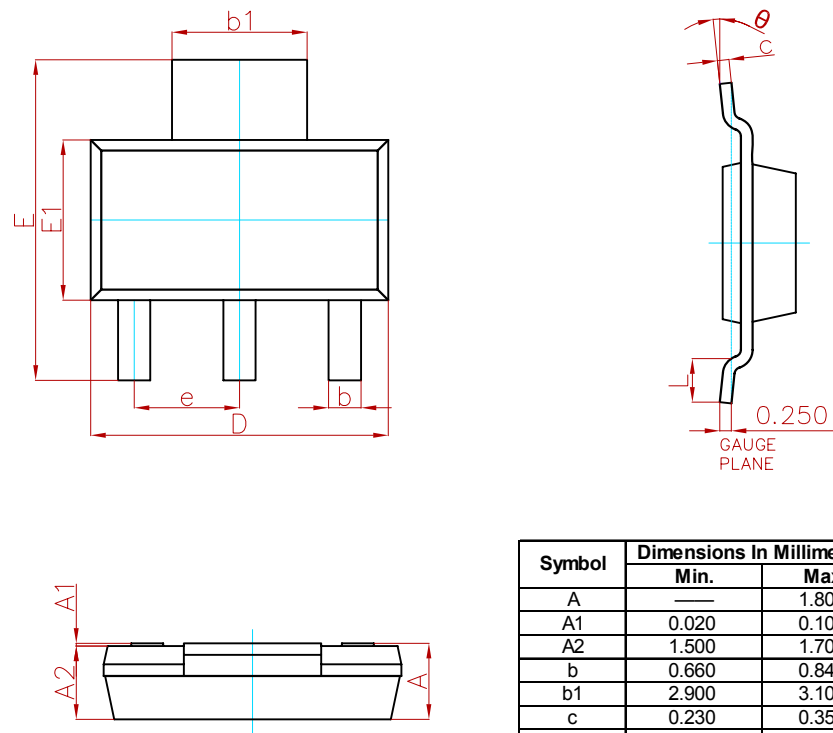


### $V_{BE(on)}$ v $I_C$



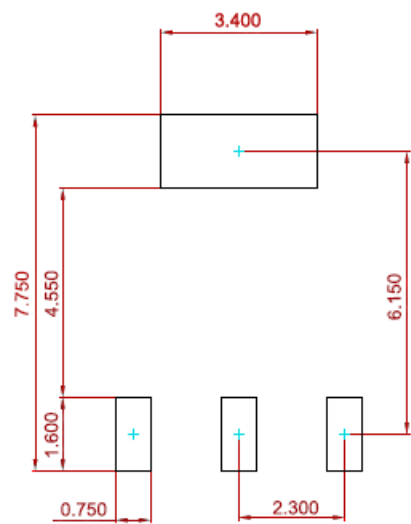
### Safe Operating Area

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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