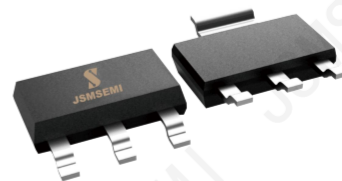


Features

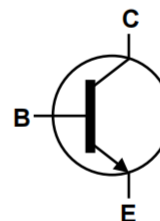
- $BV_{CEO} > 45V, 60V \text{ \& } 80V$
- $I_C = 1A$ High Continuous Collector Current
- $I_{CM} = 2A$ Peak Pulse Current
- 2W Power Dissipation
- Low Saturation Voltage $V_{CE(sat)} < 500mV @ 0.5A$
- Gain Groups 10 and 16

Mechanical Data

- Case: SOT223
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Plated Leads. Solderable per MIL-STD-202, Method 208
- Weight: 0.112 grams (Approximate)



SOT223



Device Symbol

Applications

- Medium Power Switching or Amplification Applications
- AF Driver and Output Stages

Absolute Maximum Ratings (@ $T_A = +25^\circ C$, unless otherwise specified.)

Characteristic	Symbol	PBSS8110Z,135-JSM	Unit
Collector-Base Voltage	V_{CBO}	100	V
Collector-Emitter Voltage	V_{CEO}	80	V
Emitter-Base Voltage	V_{EBO}	5	V
Continuous Collector Current	I_C	1	A
Peak Pulse Collector Current (Single pulse)	I_{CM}	2	
Continuous Base Current	I_B	100	mA
Peak Pulse Base Current (Single pulse)	I_{BM}	200	

Thermal Characteristics (@ $T_A = +25^\circ C$, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Power Dissipation	(Note 5) P_D	2	W
Thermal Resistance, Junction to Ambient	(Note 5) $R_{\theta JA}$	62	$^\circ C/W$
Thermal Resistance, Junction to Leads	(Note 6) $R_{\theta JL}$	19.4	$^\circ C/W$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ C$

ESD Ratings (Note 7)

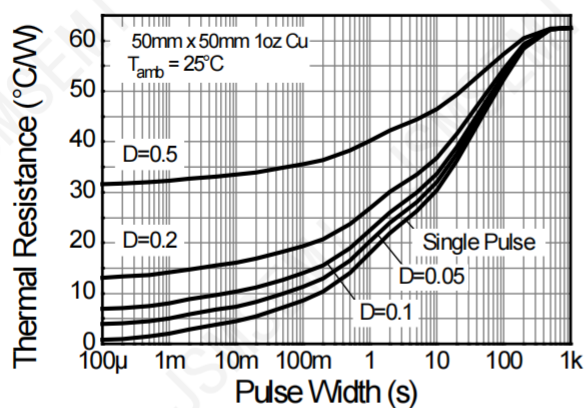
Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	400	V	C

Notes: 5. For a device mounted with the collector lead on 50mm x 50mm 1oz copper that is on a single-sided 1.6mm FR4 PCB; device is measured under still air conditions whilst operating in steady-state.

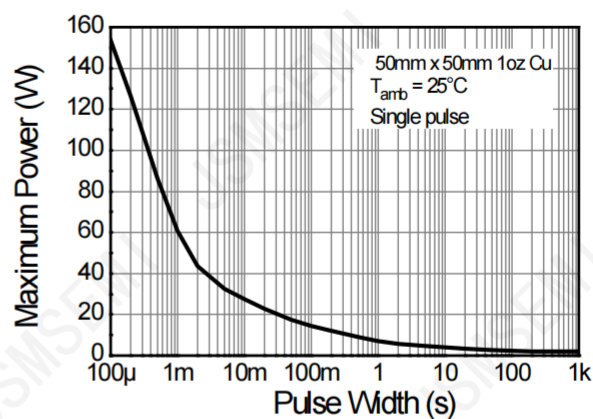
6. Thermal resistance from junction to solder-point (at the end of the collector lead).

7. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

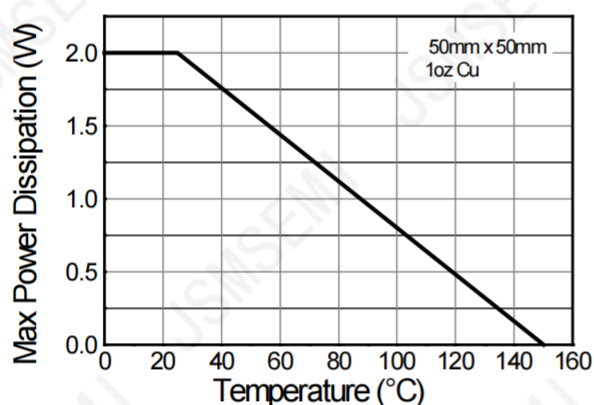
Thermal Characteristics and Derating Information



Transient Thermal Impedance



PulsePower Dissipation

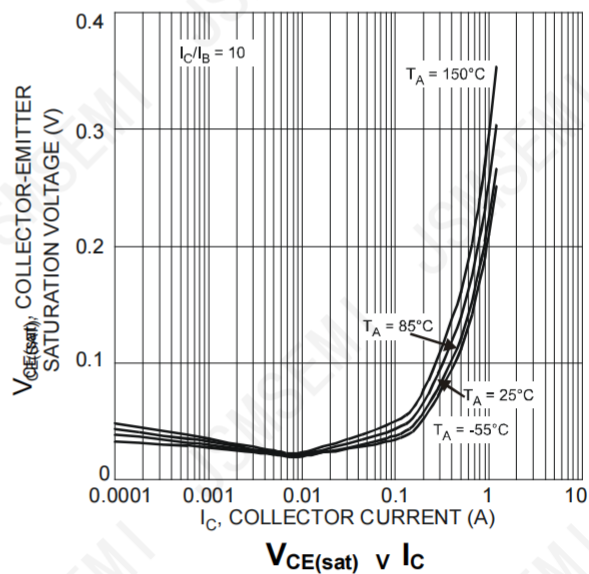
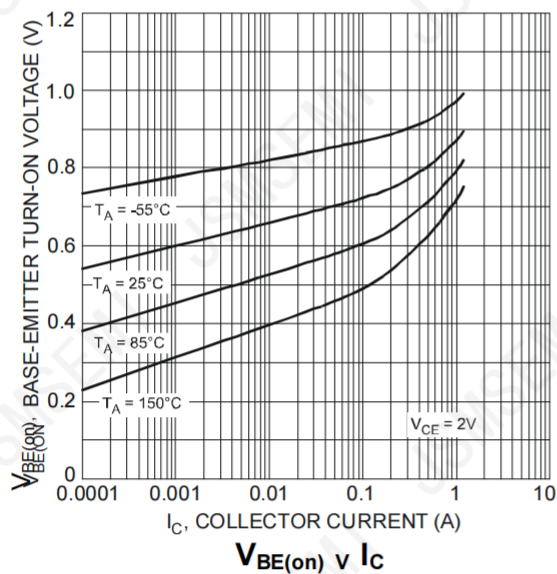
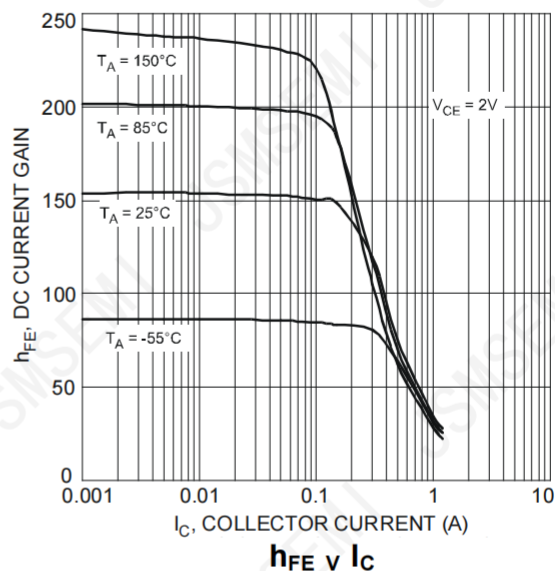
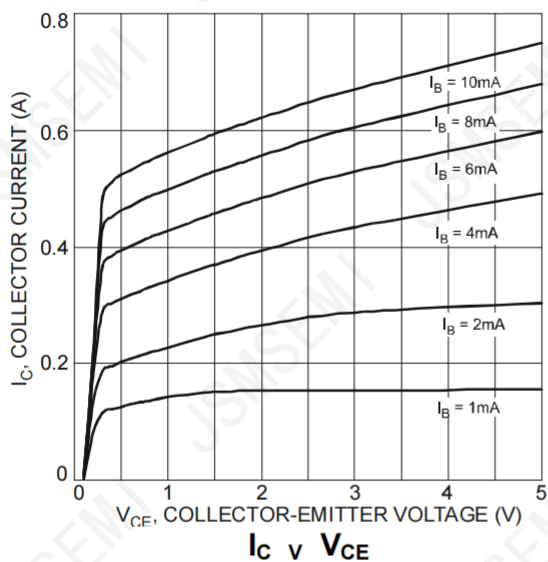


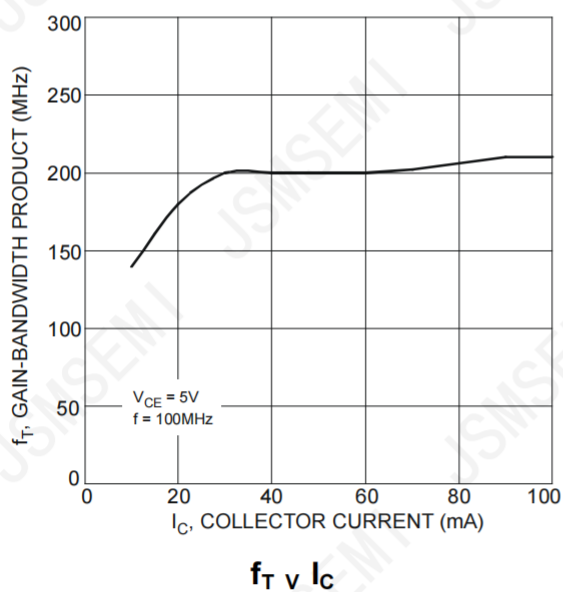
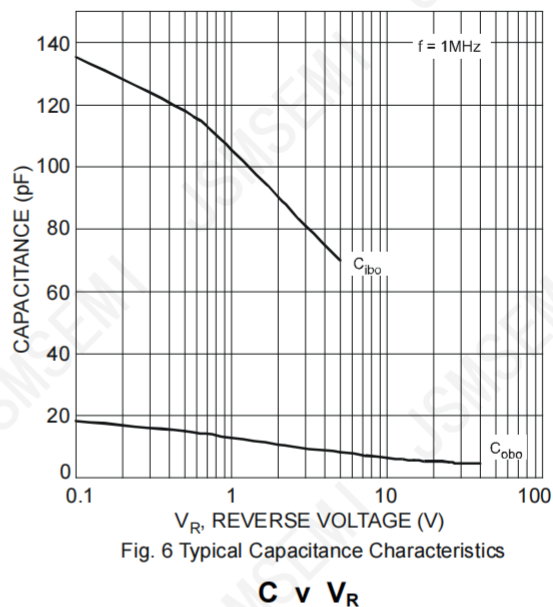
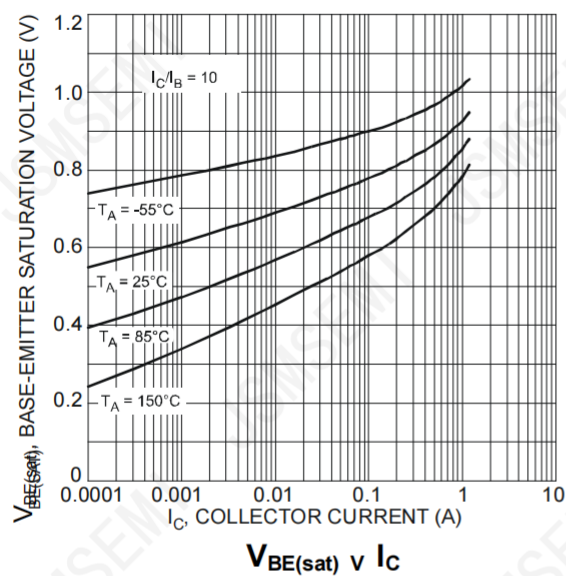
DeratingCurve

Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic		Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage		BV_{CBO}	100	-	-	V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage (Note 8)		BV_{CEO}	80	-	-	V	$I_C = 10\text{mA}$
Emitter-Base Breakdown Voltage		BV_{EBO}	5	-	-	V	$I_E = 10\mu\text{A}$
Collector Cut-Off Current		I_{CBO}	-	-	0.1 20	μA	$V_{CB} = 30\text{V}$ $V_{CB} = 30\text{V}, T_A = +150^\circ\text{C}$
Emitter Cut-Off Current		I_{EBO}	-	-	20	nA	$V_{EB} = 4\text{V}$
DC Current Gain (Note 8)	All versions	h_{FE}	25	-	-	-	$I_C = 5\text{mA}, V_{CE} = 2\text{V}$
			40	-	250		$I_C = 150\text{mA}, V_{CE} = 2\text{V}$
			25	-	-		$I_C = 500\text{mA}, V_{CE} = 2\text{V}$
	10 gain grp		63	-	160		$I_C = 150\text{mA}, V_{CE} = 2\text{V}$
	16 gain grp		100	-	250		$I_C = 150\text{mA}, V_{CE} = 2\text{V}$
Collector-Emitter Saturation Voltage (Note 8)		$V_{CE(sat)}$	-	-	0.5	V	$I_C = 500\text{mA}, I_B = 50\text{mA}$
Base-Emitter Turn-On Voltage (Note 8)		$V_{BE(on)}$	-	-	1.0	V	$I_C = 500\text{mA}, V_{CE} = 2\text{V}$
Transition frequency		f_T	150	-	-	MHz	$I_C = 50\text{mA}, V_{CE} = 10\text{V}$ $f = 100\text{MHz}$
Output Capacitance		C_{obo}	-	-	25	pF	$V_{CB} = 10\text{V}, f = 1\text{MHz}$

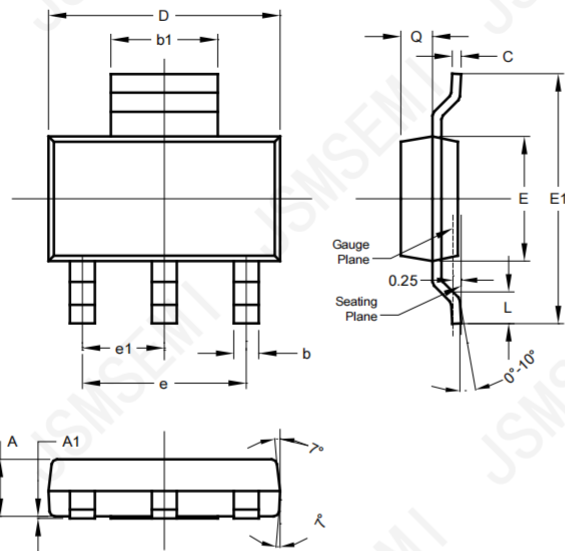
 Note: 8. Measured under pulsed conditions. Pulse width $\leq 300\mu\text{s}$. Duty cycle $\leq 2\%$.

Typical Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)


Typical Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)


Package Outline Dimensions

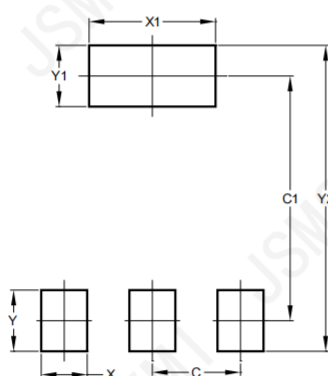
SOT223



SOT223			
Dim	Min	Max	Typ
A	1.55	1.65	1.60
A1	0.010	0.15	0.05
b	0.60	0.80	0.70
b1	2.90	3.10	3.00
C	0.20	0.30	0.25
D	6.45	6.55	6.50
E	3.45	3.55	3.50
E1	6.90	7.10	7.00
e	-	-	4.60
e1	-	-	2.30
L	0.85	1.05	0.95
Q	0.84	0.94	0.89
All Dimensions in mm			

Suggested Pad Layout

SOT223



Dimensions	Value (in mm)
C	2.30
C1	6.40
X	1.20
X1	3.30
Y	1.60
Y1	1.60
Y2	8.00

Revision History

Rev.	Change	Date
V1.0	Initial version	2/23/2024

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