优尚

YOUSHANG SEMICONDUCTOR

设计研发新型功率器件

各类小信号开关

中低压及高压大电流等场效应管

0755-83047638
ysbdt@szyoushang.cn
www.szyoushang.cn

企业微信二维码

企业QQ二维码

Features

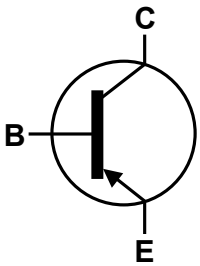
- BV_{CEO} > -40V
- I_C = -2A Continuous Current
- I_{CM} = -6A Peak Pulse Current
- Low Saturation Voltage $V_{CE(sat)}$ < -250mV @ -500mA
- P_D = 2W Power Dissipation

Mechanical Data

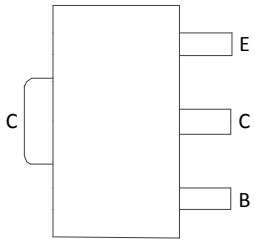
- Case: SOT89
- Case Material: Molded Plastic. “Green” Molding Compound. UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 e3
- Weight: 0.05 grams (Approximate)

SOT89

Top View



Device Symbol



Top View
Pin Out

Absolute Maximum Ratings (@ T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-50	V
Collector-Emitter Voltage	V_{CEO}	-40	V
Emitter-Base Voltage	V_{EBO}	-5	V
Continuous Collector Current	I_C	-2	A
Peak Pulse Collector Current (single pulse)	I_{CM}	-6	A

Thermal Characteristics (@ T_A = +25°C, unless otherwise specified.)

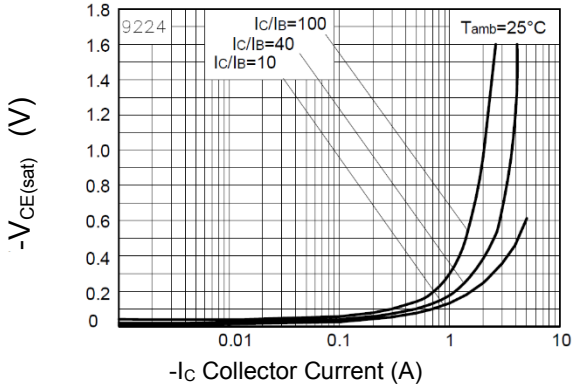
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P_D	1	W
Power Dissipation (Note 6)	P_D	2	W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

Electrical Characteristics (@ T_A = +25°C, unless otherwise specified.)

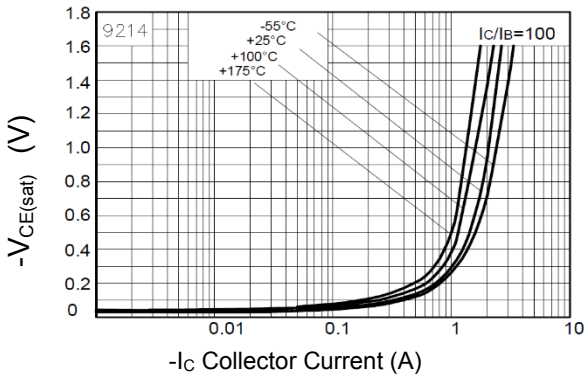
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	-50	—	—	V	I_C = -100μA
Collector- Emitter Breakdown Voltage (Note 7)	BV_{CEO}	-40	—	—	V	I_C = -10mA
Emitter-Base Breakdown Voltage	BV_{EBO}	-5	—	—	V	I_E = -100μA
Collector Cutoff Current	I_{CBO}	—	—	-0.1	μA	V_{CB} = -30V
Emitter Cutoff Current	I_{EBO}	—	—	-0.1	nA	V_{EB} = -4V
Collector-Emitter Saturation Voltage (Note 7)	$V_{CE(sat)}$	—	—	-250 -350 -450	mV	I_C = -0.5A, I_B = -5mA I_C = -1A, I_B = -10mA I_C = -2A, I_B = -50mA
Base-Emitter Saturation Voltage (Note 7)	$V_{BE(sat)}$	—	—	-0.9	mV	I_C = -1A, I_B = -10mA
Base-Emitter Turn-On Voltage (Note 7)	$V_{BE(on)}$	—	-0.8	—	mV	I_C = -1A, V_{CE} = -2V
DC Current Gain (Note 7)	h_{FE}	300 250 200 150	—	800 — — —	—	I_C = -10mA, V_{CE} = -2V I_C = -500mA, V_{CE} = -2V I_C = -1A, V_{CE} = -2V I_C = -2A, V_{CE} = -2V
Transitional frequency	f_T	100	—	—	MHz	I_C = -50mA, V_{CE} = -5V f = 50MHz
Input Capacitance	C_{ibo}	—	225	—	pF	V_{EB} = -0.5V, f = 1MHz
Output Capacitance	C_{obo}	—	24	—	pF	V_{CB} = -10V, f = 1MHz
Switching Time	t_{on}	—	35	—	ns	I_C=-500mA, I_{B1}=-50mA I_{B2}=-50mA, V_{CC}=-10V
	t_{off}		600			

Notes:
5. For a device surface mounted on 15mm x 15mm x 0.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions; device measured when operating in steady state condition.
6. Same as note (5), except the device is mounted on 40mm x 40mm x 0.6mm single sided 1oz weight copper.
7. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%.

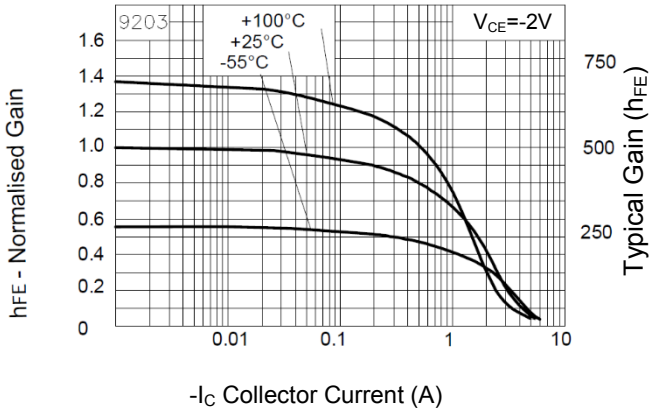
Typical Electrical Characteristics (@ T_A = +25°C, unless otherwise specified.)



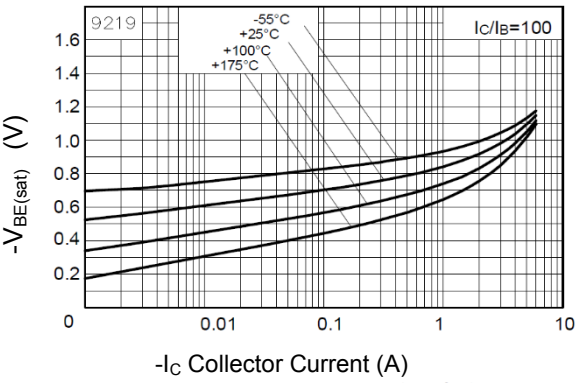
$V_{CE(sat)}$ v I_C



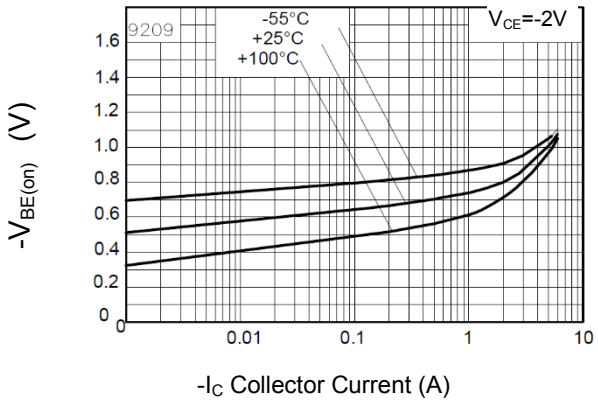
$V_{CE(sat)}$ v I_C



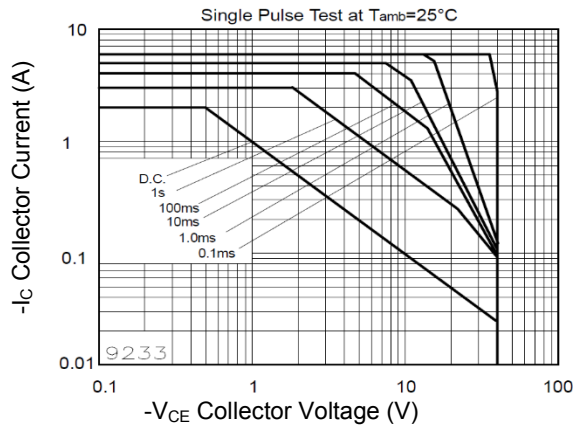
h_{FE} v I_C



$V_{BE(sat)}$ v I_C



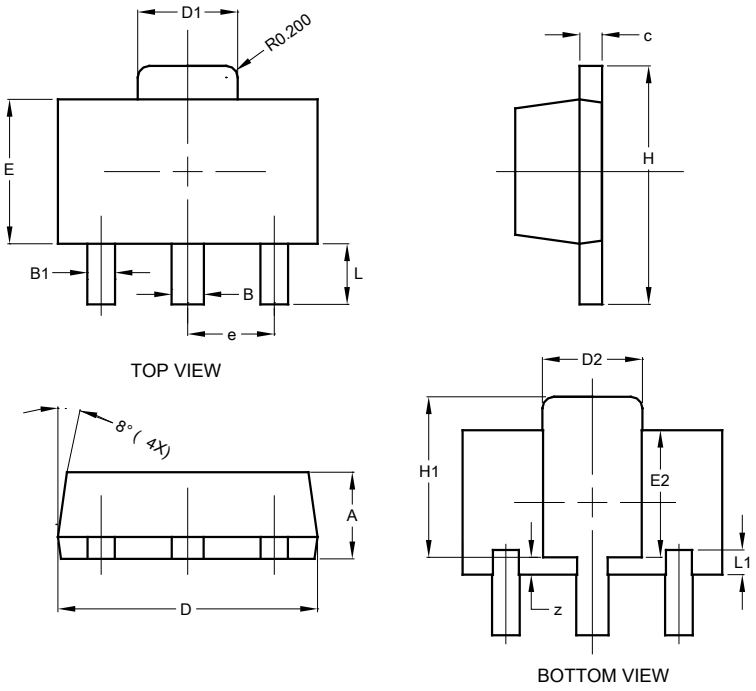
$V_{BE(on)}$ v I_C



Safe Operating Area

Package Outline Dimensions

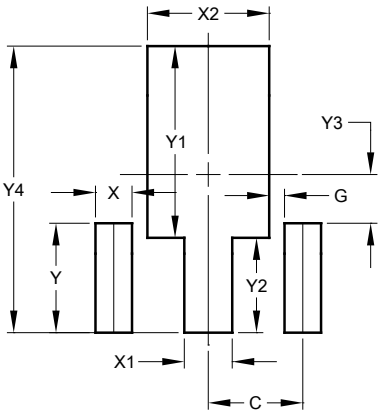
SOT89



SOT89			
Dim	**Min**	**Max**	**Typ**
A	1.40	1.60	1.50
B	0.50	0.62	0.56
B1	0.42	0.54	0.48
c	0.35	0.43	0.38
D	4.40	4.60	4.50
D1	1.62	1.83	1.733
D2	1.61	1.81	1.71
E	2.40	2.60	2.50
E2	2.05	2.35	2.20
e	-	-	1.50
H	3.95	4.25	4.10
H1	2.63	2.93	2.78
L	0.90	1.20	1.05
L1	0.327	0.527	0.427
z	0.20	0.40	0.30
All Dimensions in mm			

Suggested Pad Layout

SOT89



Dimensions	Value (in mm)
C	1.500
G	0.244
X	0.580
X1	0.760
X2	1.933
Y	1.730
Y1	3.030
Y2	1.500
Y3	0.770
Y4	4.530