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

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Features

- BV_{CEO} > -20V
- I_C = -3.5A Continuous Collector Current
- I_{CM} = -10A Peak Pulse Current
- $R_{CE(sat)}$ = 31mΩ for a Low Equivalent On-Resistance
- Low Saturation Voltage of <-70mV max @ -1A/100mA
- h_{FE} Characterized up to -10A for High Current Gain Hold-Up

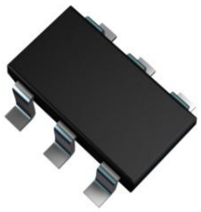
Mechanical Data

- Case: SOT26
- Case Material: Molded Plastic, “Green” Molding Compound. UL Flammability Classification 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: 0.015 grams (Approximate)

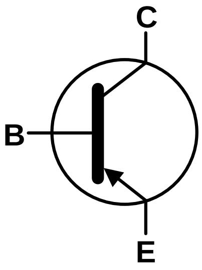
Applications

- DC-DC Converters
- Power Management Functions
- Power Switches
- Motor Control

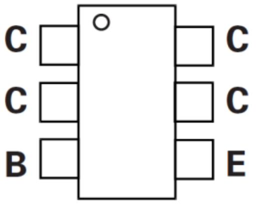
SOT26



Top View



Device Symbol



Pin-Out Top

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

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CBO}	-25	V
Collector-Emitter Voltage	V_{CEO}	-20	V
Emitter-Base Voltage	V_{EBO}	-7.5	V
Continuous Collector Current	I_C	-3.5	A
Peak Pulse Collector Current	I_{CM}	-10	A

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

Characteristic		Symbol	Value	Unit
Power Dissipation Linear Derating Factor	(Note 5)	P_D	1.1 8.8	W mW/°C
	(Note 6)		1.7 13.6	
Thermal Resistance, Junction to Ambient	(Note 5)	$R_{\theta JA}$	113	°C/W
	(Note 6)		73	
Thermal Resistance, Junction to Lead	(Note 7)	$R_{\theta JL}$	18.61	
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	°C

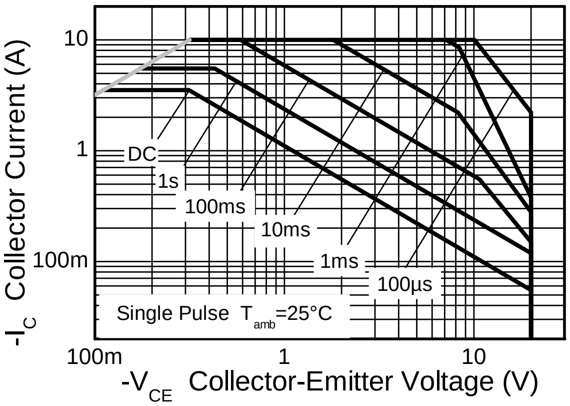
ESD Ratings (Note 8)

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

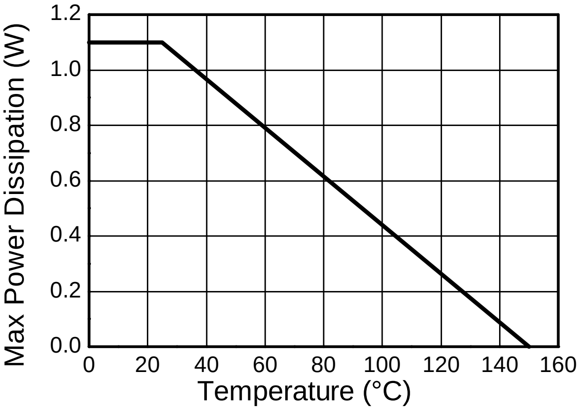
Notes:

5. For a device mounted with collector leads 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 a steady-state.
6. Same as Note 5, except the device is measured at $t \le 5$ seconds.
7. Thermal resistance from junction to solder-point (at the end of the collector leads).
8. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

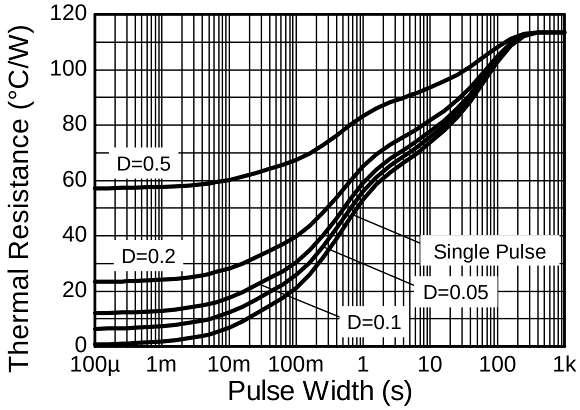
Thermal Characteristics and Derating Information



Safe Operating Area



Derating Curve



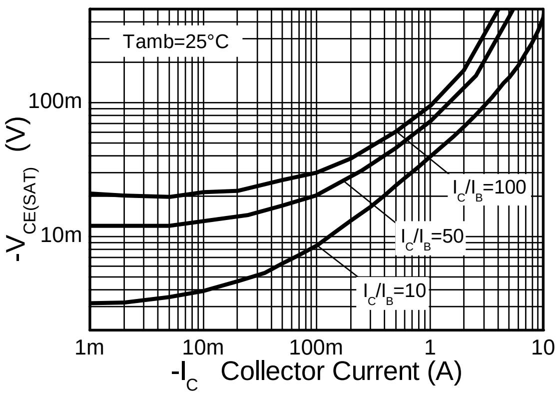
Transient Thermal Impedance

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

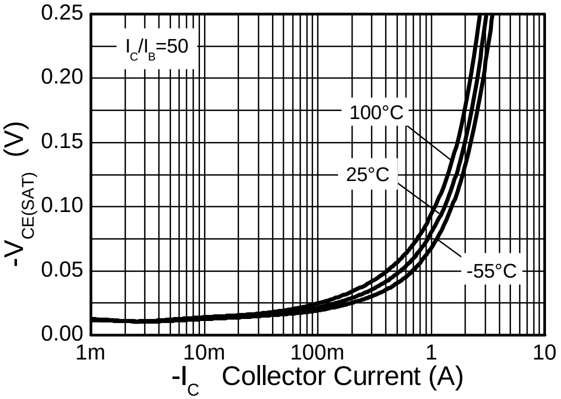
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS						
Collector-Base Breakdown Voltage	BV_{CBO}	-25	-49	—	V	I_C = -100μA
Collector-Emitter Breakdown Voltage (Note 9)	BV_{CEO}	-20	-43	—	V	I_C = -10mA
Emitter-Base Breakdown Voltage	BV_{EBO}	-7.5	-8.4	—	V	I_E = -100μA
Collector-Base Cut-Off Current	I_{CBO}	—	—	-100	nA	V_{CB} = -20V
Emitter Cut-Off Current	I_{EBO}	—	—	-100	nA	V_{EB} = -6V
Collector-Emitter Cut-Off Current	I_{CES}	—	—	-100	nA	V_{CB} = -20V
ON CHARACTERISTICS (Note 9)						
DC Current Gain	h_{FE}	300	575	—	—	I_C = -10mA, V_{CE} = -2V
		300	450	900	—	I_C = -1A, V_{CE} = -2V
		150	285	—	—	I_C = -3.5A, V_{CE} = -2V
		10	40	—	—	I_C = -10A, V_{CE} = -2V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	—	-10	-15	mV	I_C = -100mA, I_B = -10mA
		—	-100	-140		I_C = -1A, I_B = -10mA
		—	-110	-130		I_C = 3.5A, I_B = -350mA
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	—	-0.96	-1.1	V	I_C = -3.5A, I_B = -350mA
Base-Emitter Turn-On Voltage	$V_{BE(on)}$	—	-0.8	-0.9	V	I_C = -3.5A, V_{CE} = -2V
SMALL SIGNAL CHARACTERISTICS						
Current Gain-Bandwidth Product	f_T		110	—	MHz	V_{CE} = -10V, I_C = -50mA, f = 50MHz
Output Capacitance	C_{obo}	—	45	—	pF	V_{CB} = -10V, f = 1MHz
Turn-On Time	$t_{(on)}$	—	90	—	ns	V_{CC} = -10V, I_C = -2A I_{B1} = I_{B2} = -40mA
Turn-Off Time	$t_{(off)}$	—	325	—	ns	

Note: 9. Measured under pulsed conditions; pulse width ≤ 300μs, duty cycle ≤ 2%.

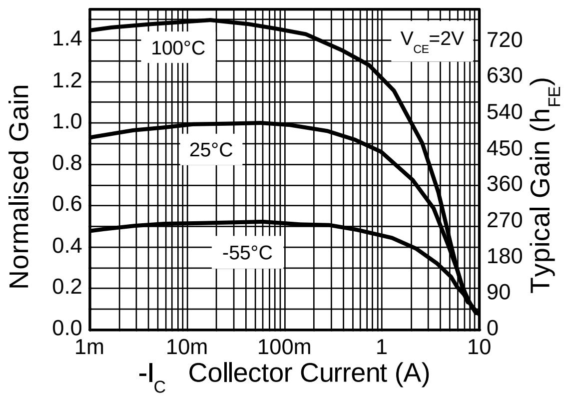
Typical Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)



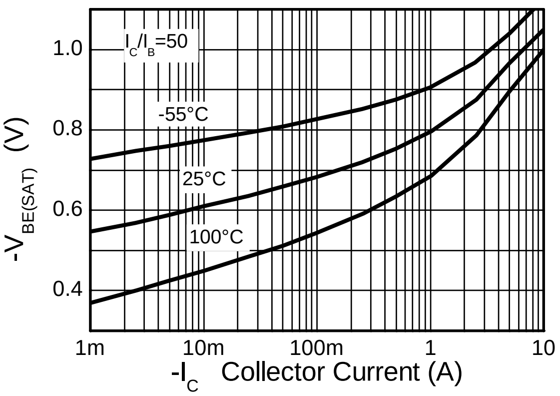
$V_{CE(SAT)}$ v I_C



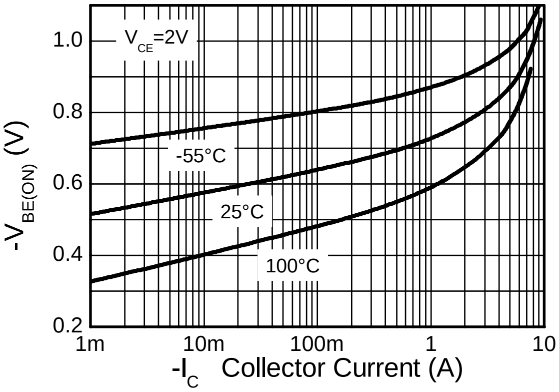
$V_{CE(SAT)}$ v I_C



h_{FE} v I_C

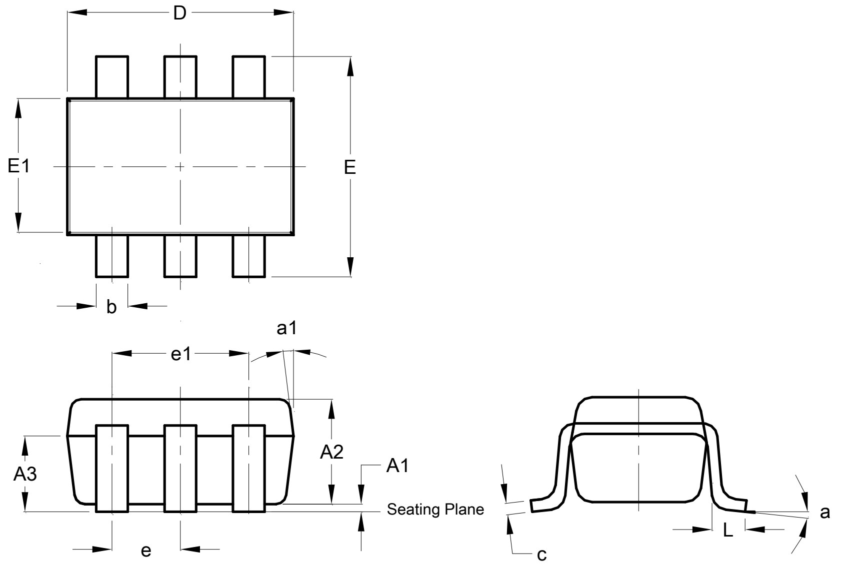


$V_{BE(SAT)}$ v I_C



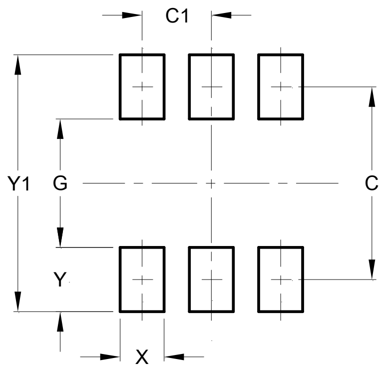
$V_{BE(ON)}$ v I_C

Package Outline



SOT26			
Dim	**Min**	**Max**	**Typ**
A1	0.013	0.10	0.05
A2	1.00	1.30	1.10
A3	0.70	0.80	0.75
b	0.35	0.50	0.38
c	0.10	0.20	0.15
D	2.90	3.10	3.00
e	-	-	0.95
e1	-	-	1.90
E	2.70	3.00	2.80
E1	1.50	1.70	1.60
L	0.35	0.55	0.40
a	-	-	8°
a1	-	-	7°
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
C	2.40
C1	0.95
G	1.60
X	0.55
Y	0.80
Y1	3.20