



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



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Features

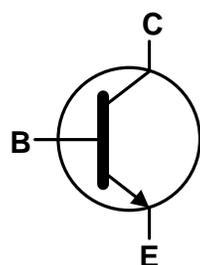
- $BV_{CEO} > 60V$
- $BV_{CEX} > 150V$
- $BV_{ECO} > 6V$
- $I_C = 3.5A$ high Continuous Collector Current
- $V_{CE(SAT)} < 65mA @ 1A$
- $R_{CE(SAT)} = 43m\Omega @ 1A$
- 1.25W Power Dissipation
- Complementary PNP Type: NK-ZXTP25060BFH

Mechanical Data

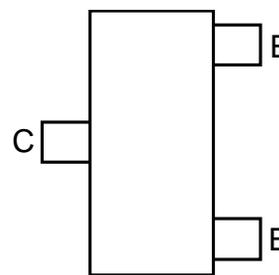
- Case: SOT23
- UL Flammability Rating 94V-0
- Case Material: Molded Plastic. "Green" Molding Compound.
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 
- Weight: 0.008 grams (Approximate)



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}	150	V
Collector-Emitter Voltage (Forward Blocking)	V _{CEX}	150	V
Collector-Emitter Voltage	V _{CEO}	60	V
Emitter-Collector Voltage (Reverse Blocking)	V _{ECO}	6	V
Emitter-Base Voltage	V _{EBO}	7	V
Continuous Collector Current	I _C	3.5	A
Peak Pulse Current	I _{CM}	10	A
Base Current	I _B	200	mA

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

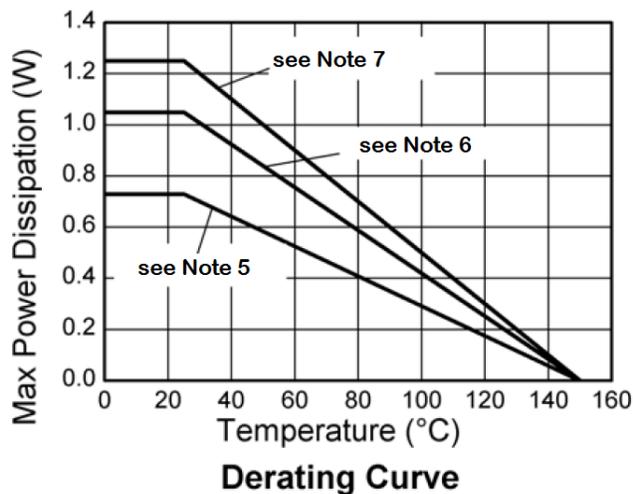
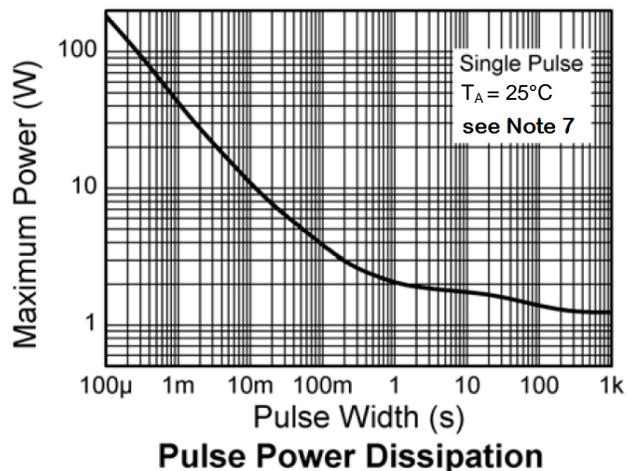
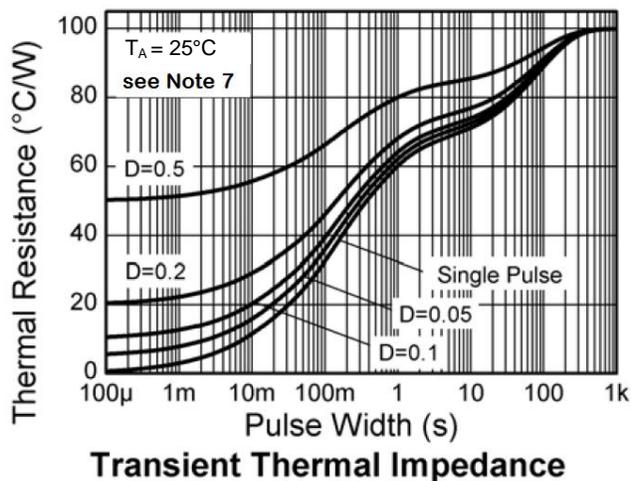
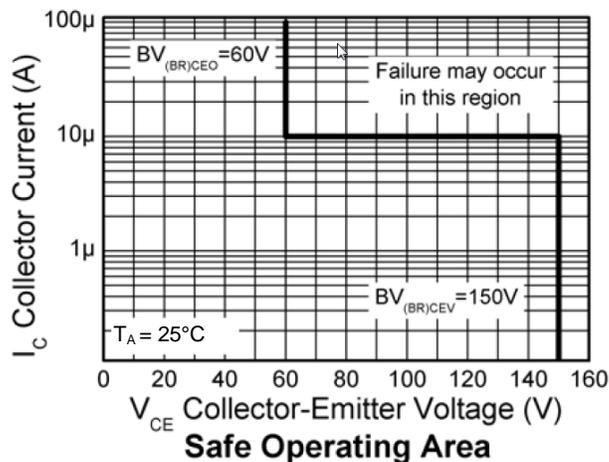
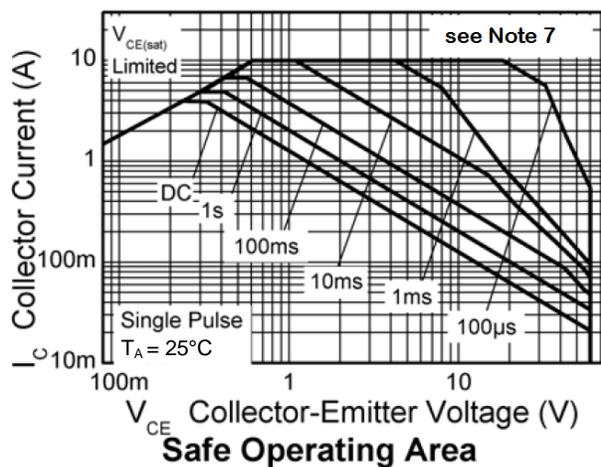
Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P _D	0.73	W
Linear Derating Factor		5.84	mW/°C
Power Dissipation (Note 6)	P _D	1.05	W
Linear Derating Factor		8.4	mW/°C
Power Dissipation (Note 7)	P _D	1.25	W
Linear Derating Factor		9.6	mW/°C
Power Dissipation (Note 8)	P _D	1.81	W
Linear Derating Factor		14.5	mW/°C
Thermal Resistance, Junction to Ambient (Note 5)	R _{θJA}	171	°C/W
Thermal Resistance, Junction to Ambient (Note 6)	R _{θJA}	119	°C/W
Thermal Resistance, Junction to Ambient (Note 7)	R _{θJA}	100	°C/W
Thermal Resistance, Junction to Ambient (Note 8)	R _{θJA}	69	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

ESD Ratings (Note 9)

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:
- For a device surface mounted on 15mm X 15mm X 1.6mm FR-4 PCB with high coverage of single sided 1 oz copper, in still air conditions.
 - Mounted on 25mm X 25mm X 1.6mm FR-4 PCB with high coverage of single sided 2 oz copper, in still air conditions.
 - Mounted on 50mm X 50mm X 1.6mm FR-4 PCB with high coverage of single sided 2 oz copper, in still air conditions.
 - As (7) above measured at t<5s.
 - Refer to JEDEC specification JESD22-A114 and JESD22-A115.

Thermal Characteristics and Derating Information

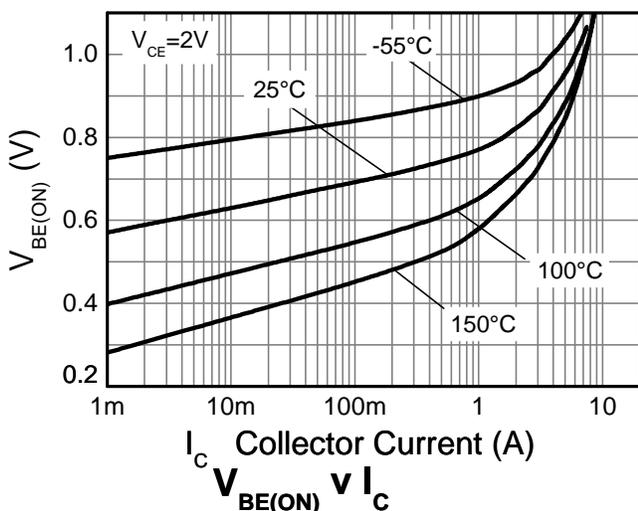
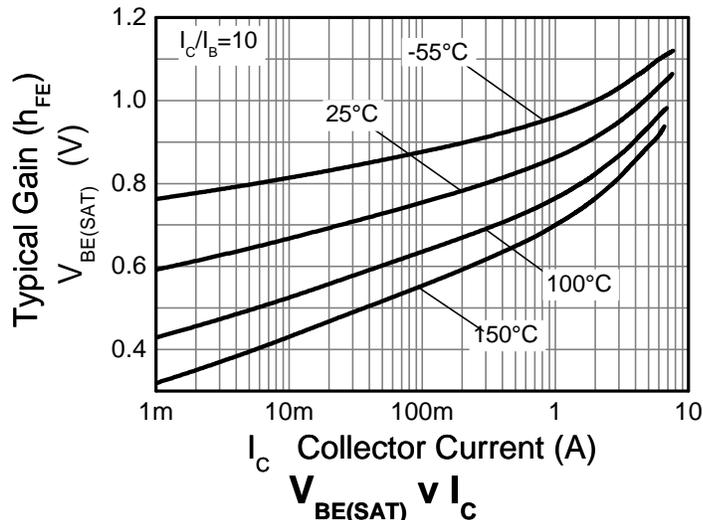
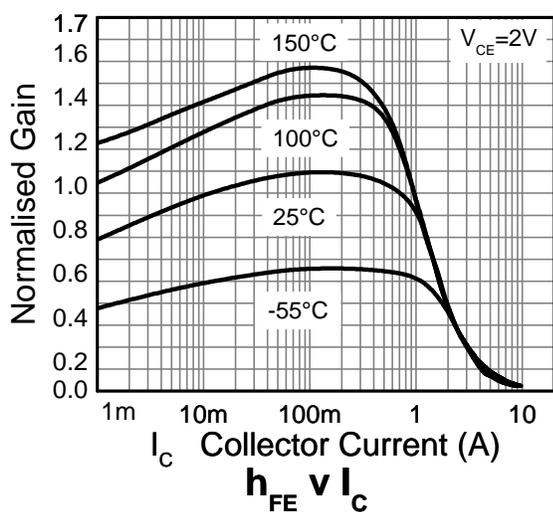
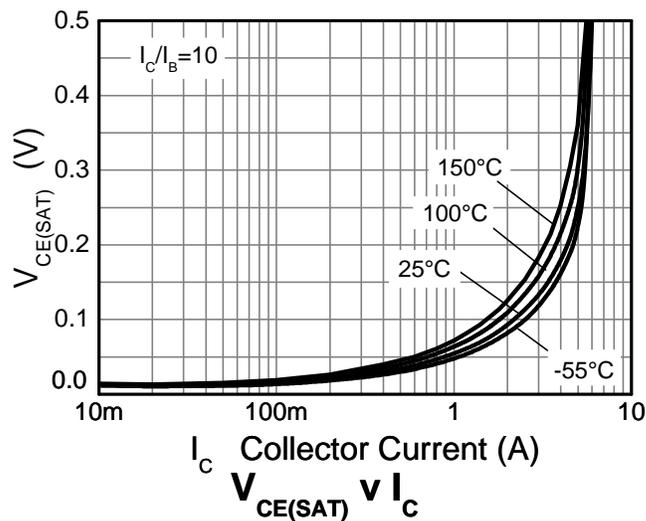
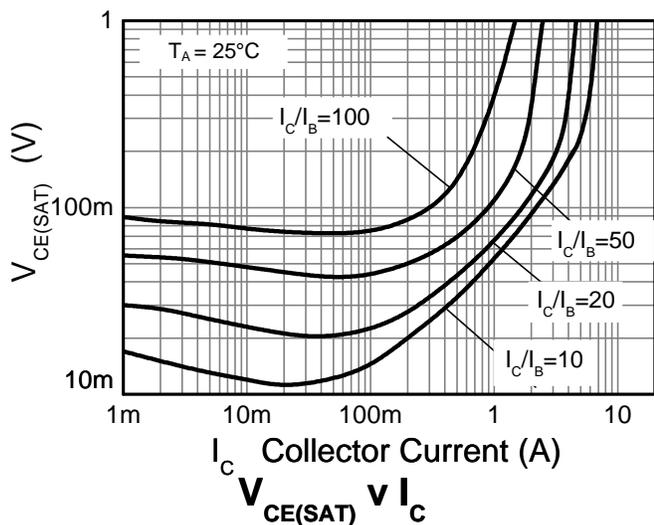


Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV_{CBO}	150	190	—	V	$I_C = 100\mu\text{A}$
Collector Emitter Breakdown Voltage (Forward Blocking)	BV_{CEX}	150	190	—	V	$I_C = 100\mu\text{A}$, $R_{BE} \leq 1\text{k}\Omega$ or $-1\text{V} < V_{BE} < 0.25\text{V}$
Collector-Emitter Breakdown Voltage (Note 10)	BV_{CEO}	60	80	—	V	$I_C = 10\text{mA}$
Emitter-Collector Breakdown Voltage (Reverse Blocking)	BV_{ECX}	6	8	—	V	$I_E = 100\mu\text{A}$, $R_{BE} \leq 1\text{k}\Omega$ or $-1\text{V} < V_{BC} < 0.25\text{V}$
Emitter-Collector Breakdown Voltage (Base Open)	BV_{ECO}	6	7	—	V	$I_E = 100\mu\text{A}$
Emitter-Base Breakdown Voltage	BV_{EBO}	7	8	—	V	$I_E = 100\mu\text{A}$
Collector Cutoff Current	I_{CBO}	—	<1	50 20	nA μA	$V_{CB} = 120\text{V}$ $V_{CB} = 120\text{V}$, $T_A = +100^\circ\text{C}$
Collector Emitter Cutoff Current	I_{CEX}	—	—	100	nA	$V_{CE} = 120\text{V}$, $R_{BE} \leq 1\text{k}\Omega$ or $-1\text{V} < V_{BE} < 0.25\text{V}$
Emitter Cutoff Current	I_{EBO}	—	<1	50	nA	$V_{EB} = 5.6\text{V}$
Static Forward Current Transfer Ratio (Note 10)	h_{FE}	100 90 25	200 180 40	300 — —	—	$I_C = 10\text{mA}$, $V_{CE} = 2\text{V}$ $I_C = 1\text{A}$, $V_{CE} = 2\text{V}$ $I_C = 3.5\text{A}$, $V_{CE} = 2\text{V}$
Collector-Emitter Saturation Voltage (Note 10)	$V_{CE(SAT)}$	—	33 73 50 150	40 95 65 175	mV mV mV mV	$I_C = 0.5\text{A}$, $I_B = 50\text{mA}$ $I_C = 0.5\text{A}$, $I_B = 10\text{mA}$ $I_C = 1\text{A}$, $I_B = 100\text{mA}$ $I_C = 3.5\text{A}$, $I_B = 350\text{mA}$
Base-Emitter Turn-On Voltage (Note 10)	$V_{BE(ON)}$	—	865	950	mV	$I_C = 3.5\text{mA}$, $V_{CE} = 2\text{V}$
Base-Emitter Saturation Voltage (Note 10)	$V_{BE(SAT)}$	—	960	1050	mV	$I_C = 3.5\text{mA}$, $I_B = 350\text{mA}$
Output Capacitance (Note 10)	C_{obo}	—	11.5	20	pF	$V_{CB} = 10\text{V}$, $f = 1\text{MHz}$
Transition Frequency	f_T	—	185	—	MHz	$V_{CE} = 5\text{V}$, $I_C = 100\text{mA}$, $f = 100\text{MHz}$
Turn-On Time	t_{ON}	—	34	—	ns	$V_{CC} = 10\text{V}$, $I_C = 500\text{mA}$
Turn-Off Time	t_{OFF}	—	566	—	ns	$I_{B1} = -I_{B2} = 50\text{mA}$

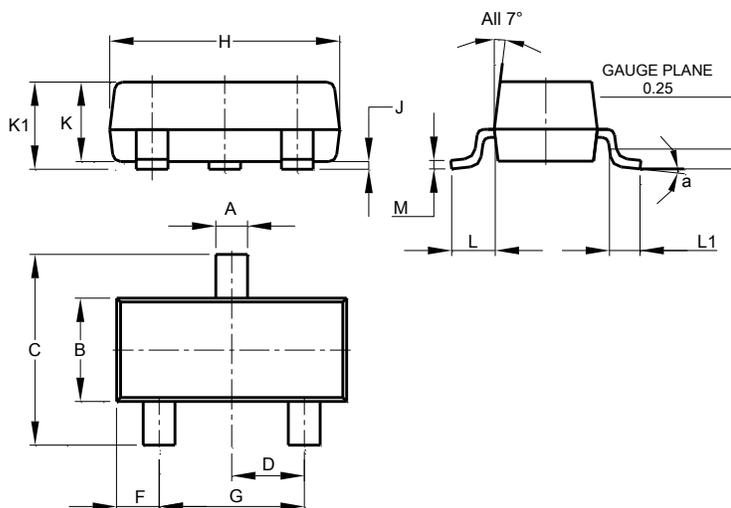
 Note: 10. Measured under pulsed conditions. Pulse width $\leq 300\mu\text{s}$. Duty cycle $\leq 2\%$.

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



Package Outline Dimensions

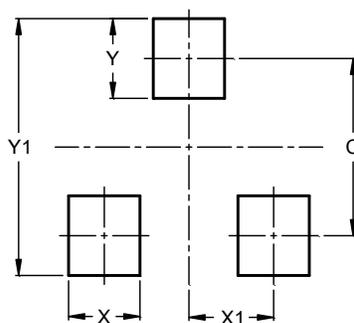
SOT23



SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	—
All Dimensions in mm			

Suggested Pad Layout

SOT23



Dimensions	Value (in mm)
C	2.0
X	0.8
X1	1.35
Y	0.9
Y1	2.9