



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 and Benefits

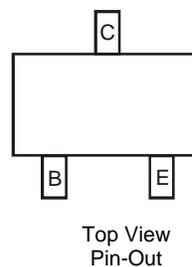
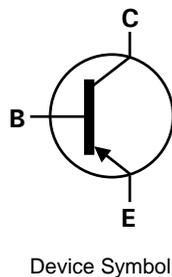
- $BV_{CEO} > -60V$ Breakdown Voltage
- 100V forward blocking voltage
- $I_C = -3A$ Continuous Collector Current,
- $I_{CM} = -9A$ Peak Pulse Current,
- Low saturation voltage, $V_{CE(sat)} < -85mV @ -1A$
- $R_{CE(sat)} = 58 m\Omega$ for a low equivalent on-resistance
- 1.25W power dissipation using SuperSOT package
- Complementary part number NK-ZXTN25060BFH

Mechanical Data

- Case: SOT23
- Case material: molded Plastic. "Green" molding Compound.
- UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish
- Weight: 0.008 grams (Approximate)

Applications

- MOSFET drivers
- Power switches
- Motor control



Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

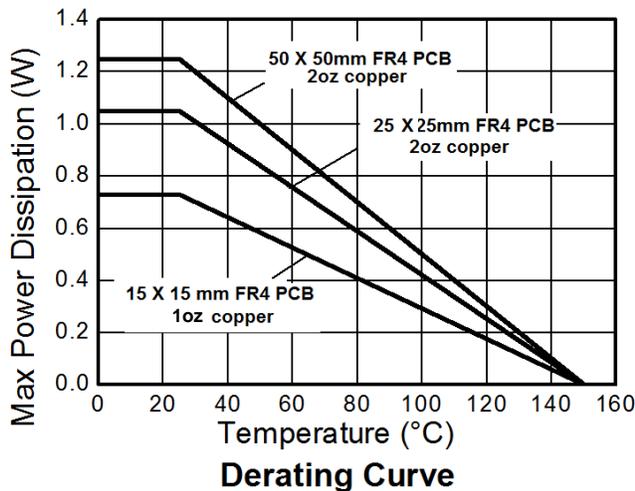
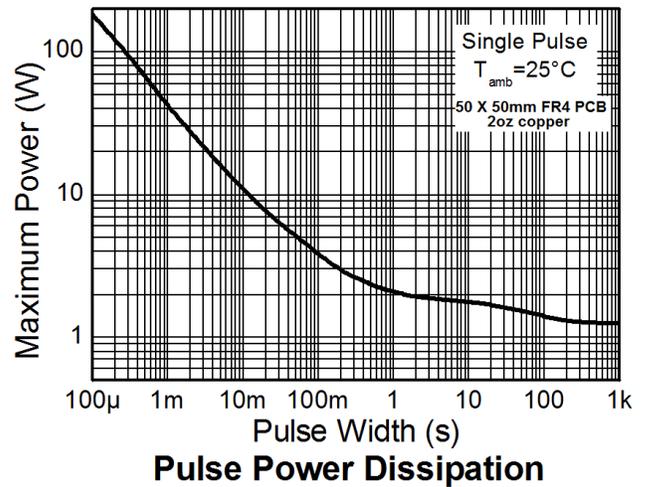
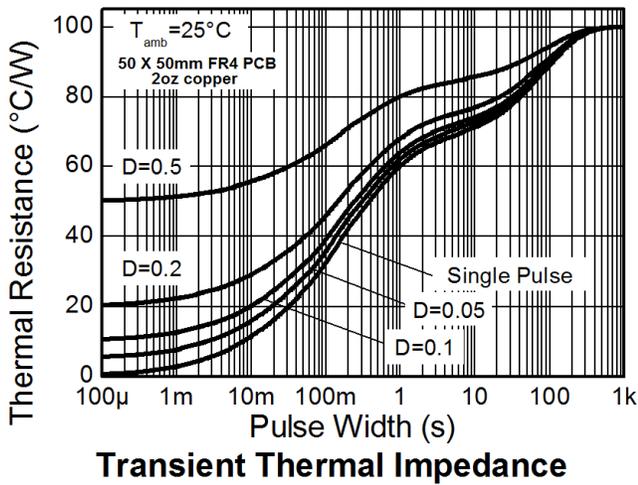
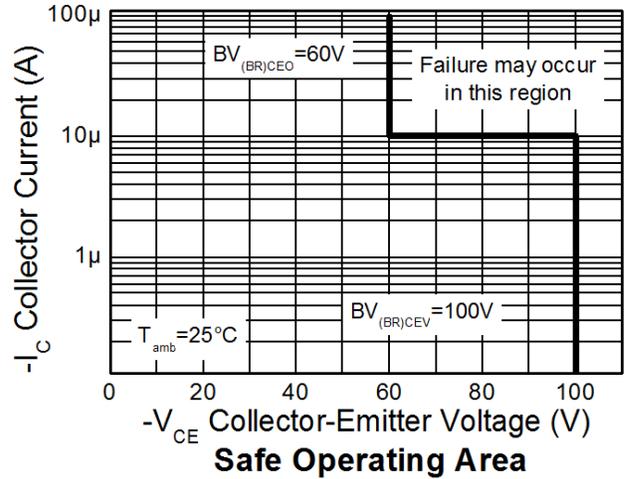
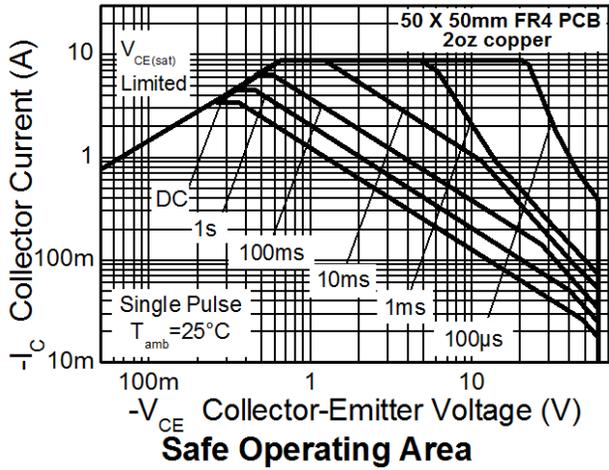
Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CB0}	-100	V
Collector-Emitter Voltage (forward blocking)	V_{CEX}	-100	V
Collector-Emitter Voltage	V_{CEO}	-60	V
Emitter-Collector Voltage (reverse blocking)	V_{ECO}	-7	V
Emitter-Base Voltage	V_{EBO}	-7	V
Continuous Collector Current	I_C	-3	A
Peak pulse Current	I_{CM}	-9	A

Thermal Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic		Symbol	Value	Unit
Power Dissipation Linear derating factor	(Note 4)	P_D	0.73	W
			5.84	
	(Note 5)		1.05	
			8.4	
	(Note 6)		1.25	
	(Note 7)		9.6	
			1.81	
			14.5	
Thermal Resistance, Junction to Ambient	(Note 4)	$R_{\theta JA}$	171	$^\circ\text{C/W}$
	(Note 5)		119	
	(Note 6)		100	
	(Note 7)		69	
Thermal Resistance, Junction to Lead	(Note 8)	$R_{\theta JL}$	74.95	$^\circ\text{C/W}$
Operating and Storage Temperature Range		T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

- Notes:
4. For a device surface mounted on 15mm x 15mm x 1.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions; the device is measured when operating in a steady-state condition.
 5. Same as note (4), except the device is surface mounted on 25mm x 25mm with 2 oz copper.
 6. Same as note (4), except the device is surface mounted on 50mm x 50mm with 2 oz copper.
 7. Same as note (6), except the device is measured at $t < 5\text{secs}$.
 8. Thermal resistance from junction to solder-point (at the end of the collector lead).

Thermal Characteristics

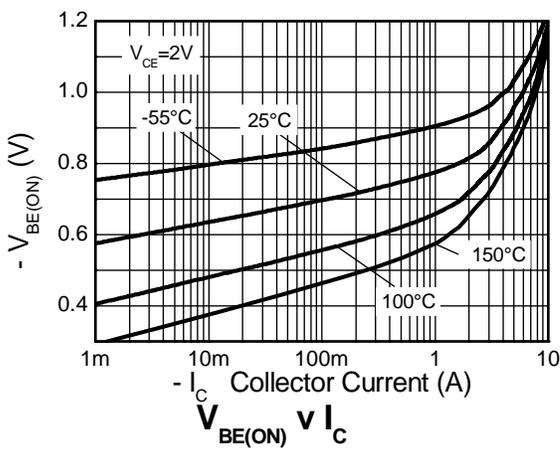
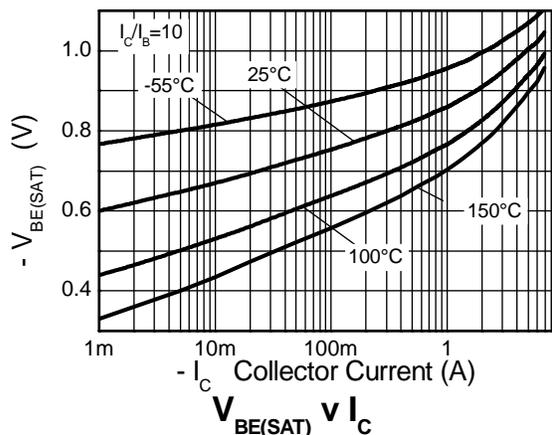
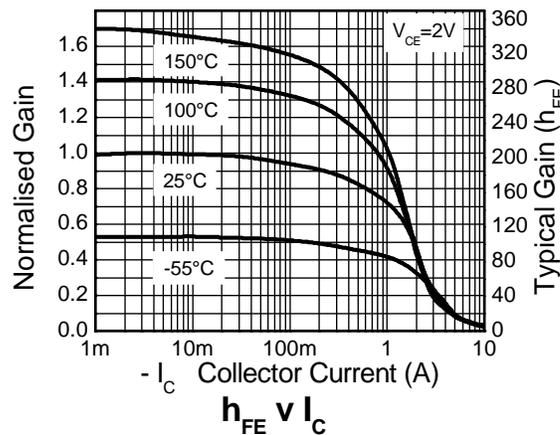
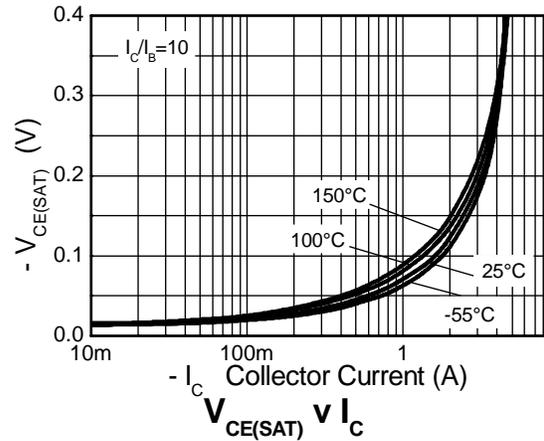
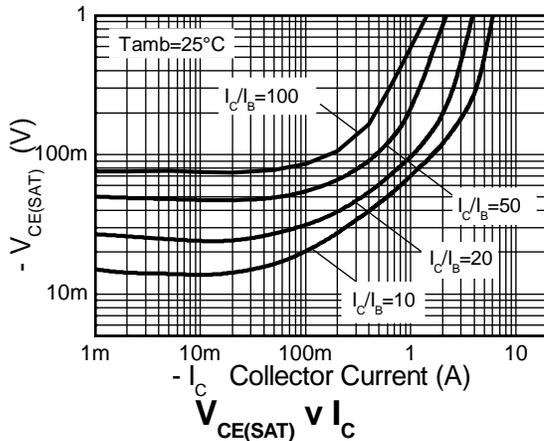


Electrical Characteristics @T_A = 25°C unless otherwise specified

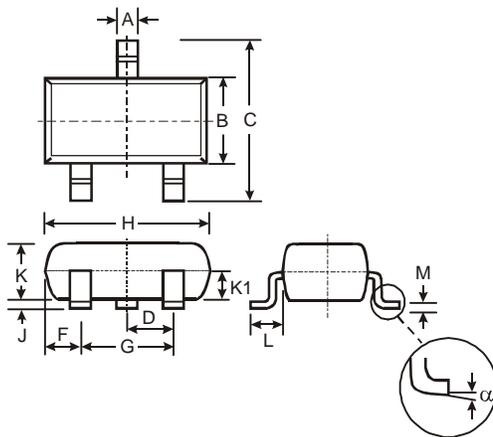
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV _{CB0}	-100	-120	-	V	I _C = -100 μA
Collector-Emitter Breakdown Voltage (forward blocking)	BV _{CEX}	-100	-120	-	V	I _C = -100 μA, R _{BE} < 1kΩ or -0.25V < V _{BE} < 1V
Collector-Emitter Breakdown Voltage (base open) (Note 9)	BV _{CEO}	-60	-80	-	V	I _C = -10mA
Emitter- Collector Breakdown Voltage (Reverse blocking) (Note 9)	BV _{ECO}	-7	-8.6	-	V	I _E = -100μA
Emitter-Base Breakdown Voltage	BV _{EBO}	-7	-8.1	-	V	I _E = -100μA
Collector Cutoff Current	I _{CBO}	-	< -1	-50	nA	V _{CB} = -80V
		-	-	-20	μA	V _{CB} = -80V, T _A = 100°C
Collector emitter Cutoff Current	I _{CEX}	-	-	-100	nA	V _{CE} = -80V, R _{BE} < 1kΩ or -0.25V < V _{BE} < 1V
Emitter Cutoff Current	I _{EBO}	-	< -1	-50	nA	V _{EB} = -6V
Static Forward Current Transfer Ratio (Note 9)	h _{FE}	100	200	300	-	I _C = -10mA, V _{CE} = -2V
		75	150	-	-	I _C = -1A, V _{CE} = -2V
		30	60	-	-	I _C = -3A, V _{CE} = -2V
Base-Emitter Saturation Voltage (Note 9)	V _{BE(sat)}	-	-940	-1040	mV	I _C = -3A, I _B = -300mA
Base-Emitter turn-on Voltage (Note 9)	V _{BE(on)}	-	-830	-930	mV	I _C = -3A, V _{CE} = -2V
Collector-Emitter Saturation Voltage (Note 9)	V _{CE(sat)}	-	-45	-55	mV	I _C = -0.5A, I _B = -50mA
		-	-100	-135		I _C = -0.5A, I _B = -10mA
		-	-70	-85		I _C = -1A, I _B = -100mA
		-	-175	-235		I _C = -3A, I _B = -300mA
Transition Frequency	f _T	-	250	-	MHz	I _C = -100mA, V _{CE} = -5V, f = 100MHz
Collector Output Capacitance (Note 9)	C _{OBO}	-	17.6	30	pF	V _{CB} = -10V, f = 1MHz
Turn-on time	t _(on)	-	26.5	-	ns	V _{CC} = -10V, I _C = -500mA,
Turn-off time	t _(off)	-	291	-	ns	I _{B1} = I _{B2} = -50mA

Notes: 9. Measured under pulsed conditions. Pulse width ≤ 300 μs. Duty cycle ≤ 2%

Typical Characteristics

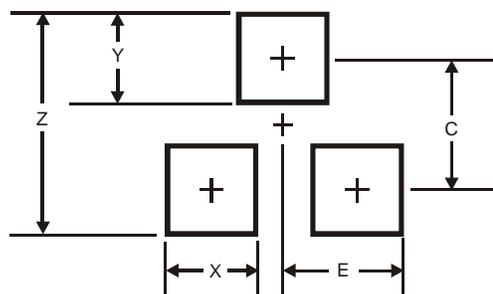


Package Outline Dimensions



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	0.903	1.10	1.00
K1	-	-	0.400
L	0.45	0.61	0.55
M	0.085	0.18	0.11
α	0°	8°	-
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35