



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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企业微信二维码



企业QQ二维码

Features

- $BV_{CEO} > -20V$
- $BV_{ECO} > -7V$
- $I_C = -4A$ Continuous Collector Current
- $V_{CE(sat)} < -55mV @ -1A$
- $R_{CE(sat)} = 34m\Omega$
- High Peak Current
- Complementary Part Number NK-ZXTN25020CFH

Mechanical Data

- Case: SOT23
- 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 
- Weight: 0.008 grams (Approximate)

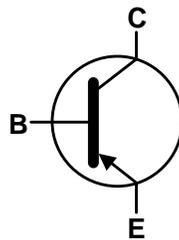
Applications

- MOSFET and IGBT Gate Driving
- DC-DC Converters

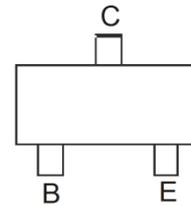
SOT23



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}	-25	V
Collector-Emitter Voltage (Forward Blocking)	V _{CEO}	-20	V
Emitter-collector voltage (Reverse Blocking)	V _{ECO}	-7	V
Emitter-Base Voltage	V _{EBO}	-7	V
Continuous Collector Current (Note 5)	I _C	-4	A
Base Current	I _B	-1	A
Peak Pulse Current	I _{CM}	-10	A

Thermal Characteristics

Characteristic		Symbol	Value	Unit
Power Dissipation Linear derating factor	(Note 5)	P _D	0.73	W
	(Note 6)		5.84	
	(Note 7)		1.05	
			8.4	
	(Note 8)		1.25	
Thermal Resistance, Junction to Ambient	(Note 5)	R _{θJA}	9.6	°C/W
	(Note 6)		1.81	
	(Note 7)		14.5	
	(Note 8)		171	
Thermal Resistance, Junction to Lead	(Note 9)	R _{θJL}	74.95	°C/W
Operating and Storage Temperature Range	—	T _J , T _{STG}	-55 to +150	°C

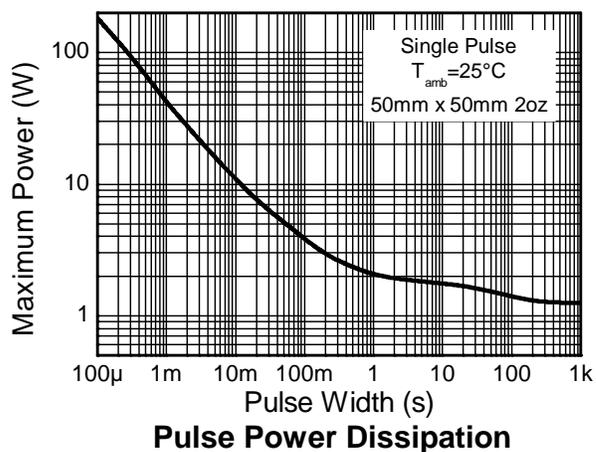
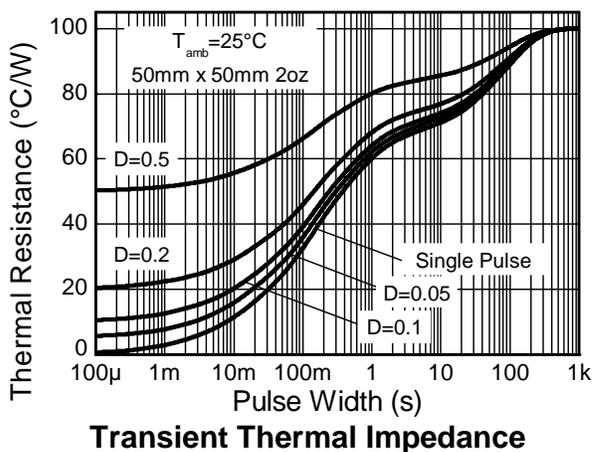
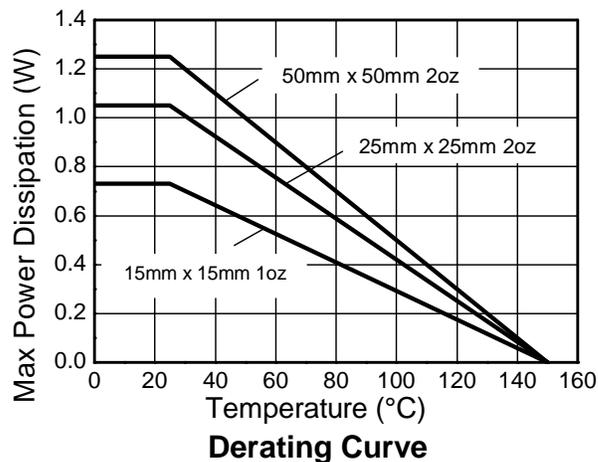
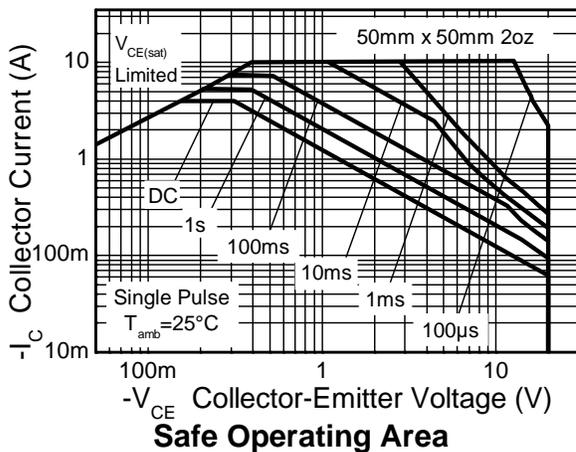
- Notes:
5. For a device surface mounted on 15mm x 15mm x 1.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions; the device is measured when operating in a steady-state condition.
 6. Same as note (5), except the device is surface mounted on 25mm x 25mm with 2 oz copper.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

ESD Ratings (Note 10)

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

- Note: 10. Refer to JEDEC specification JESD22-A114 and JESD22-A115.

Thermal Characteristics and Derating Information

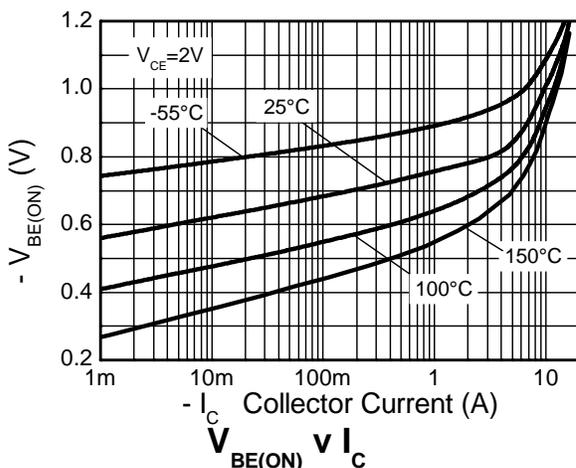
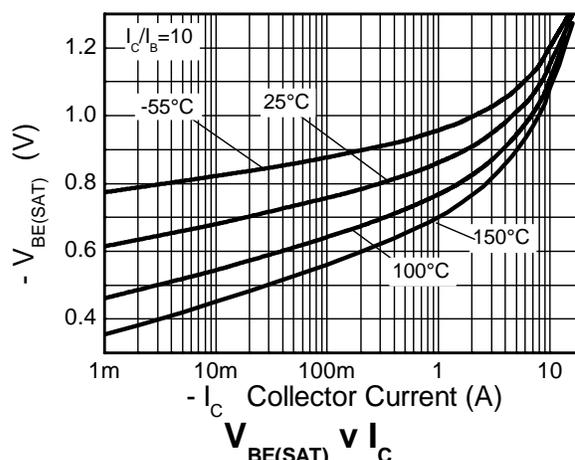
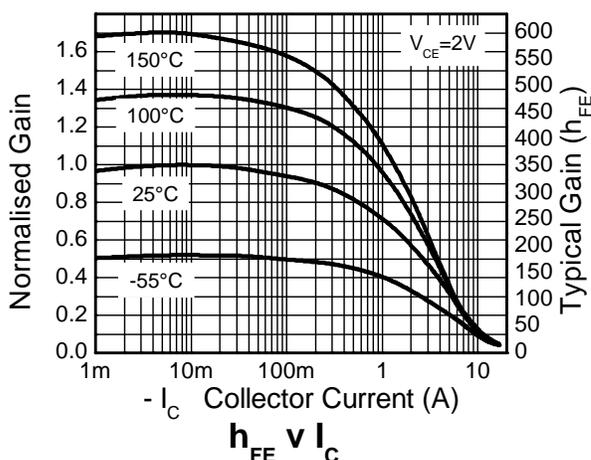
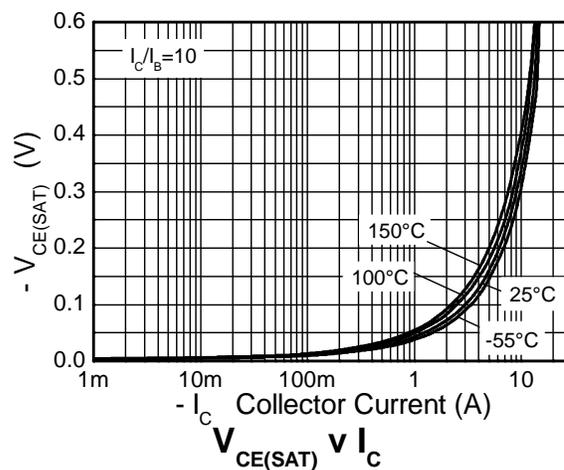
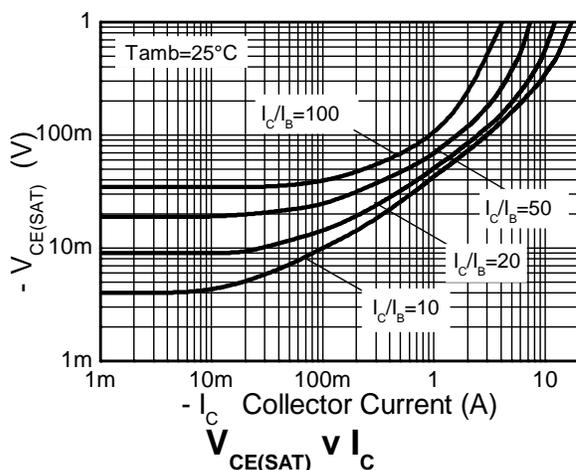


Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

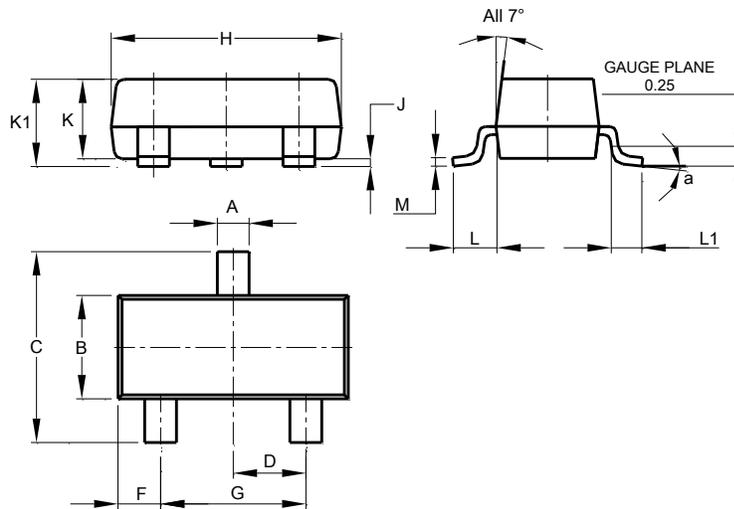
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV _{CBO}	-25	-50	—	V	I _C = -100μA
Collector-Emitter Breakdown Voltage (Note 11)	BV _{CEO}	-20	-35	—	V	I _C = -10mA
Emitter-Base Breakdown Voltage	BV _{EBO}	-7	-8.2	—	V	I _E = -100μA
Emitter-Base Breakdown Voltage	BV _{ECO}	-7	-8.8	—	V	I _E = -100μA
Collector-Base Cutoff Current	I _{CBO}	—	< -1	-50	nA	V _{CB} = -20V
		—	—	-20	μA	V _{CB} = -20V, T _{amb} = +100°C
Emitter-Base Cutoff Current	I _{EBO}	—	< -1	-50	nA	V _{EB} = -5.6V
Static Forward Current Transfer Ratio (Note 11)	h _{FE}	200	350	500	—	I _C = -10mA, V _{CE} = -2V
		—	250	—		I _C = -1A, V _{CE} = -2V
		—	140	—		I _C = -4A, V _{CE} = -2V
		—	40	—		I _C = -10A, V _{CE} = -2V
Collector-Emitter Saturation Voltage (Note 11)	V _{CE(sat)}	—	-43	-55	mV	I _C = -1A, I _B = -100mA
		—	-70	-100		I _C = -1A, I _B = -20mA
		—	-120	-170		I _C = -2A, I _B = -40mA
		—	-150	-210		I _C = -4A, I _B = -200mA
Base-Emitter Saturation Voltage (Note 11)	V _{BE(sat)}	—	-930	-1050	mV	I _C = -4A, I _B = -200mA
Base-Emitter Saturation Voltage (Note 11)	V _{BE(on)}	—	-810	-900	mV	I _C = -4A, V _{CE} = -2V
Output Capacitance	C _{obo}	—	32.4	40	pF	V _{CB} = -10V, f = 1MHz
Transition Frequency	f _T	—	285	—	MHz	V _{CE} = -10V, I _C = -50mA, f = 100MHz
Delay Time	t _(d)	—	38.4	—	nS	V _{CC} = -15V, I _C = -750mA, I _{B1} = -I _{B2} = -15mA
Rise Time	t _(r)	—	49.2	—	nS	
Storage Time	t _(s)	—	168	—	nS	
Fall Time	t _(f)	—	55	—	nS	

Note: 11. Measured under pulsed conditions. Pulse width ≤ 300 μs. Duty cycle ≤ 2%.

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

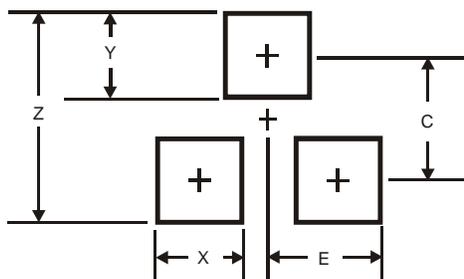


Package Outline Dimensions

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	8°		
All Dimensions in mm			

Suggested Pad Layout

SOT23


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