



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



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Summary

$V_{(BR)CEV} > -80V$

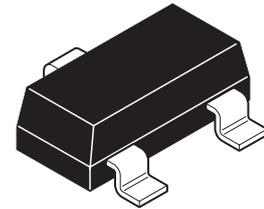
$V_{(BR)CEO} > -60V$

$I_{c(cont)} = -1A$

$V_{ce(sat)} < -600mV @ -1A$

Complementary type

NK-ZXTN2038F



Description

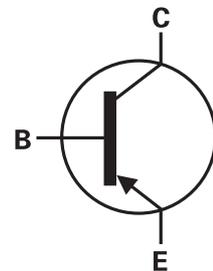
This transistor combines high gain, high current operation and low saturation voltage making it ideal for power MOSFET gate driving and low loss power switching.

Features

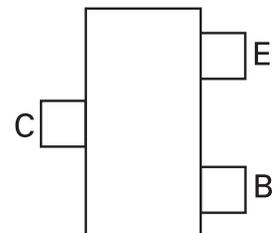
- Low saturation voltage for reduced power dissipation
- 1 to 2 amp high current capability
- Pb-free
- SOT23 package

Applications

- Power MOSFET gate driving
- Low loss power switching



Pin out - top view



Absolute maximum ratings

Parameter	Symbol	Limit	Unit
Collector-base voltage	V_{CBO}	-80	V
Collector-emitter voltage	V_{CEV}	-80	V
Collector-emitter voltage	V_{CEO}	-60	V
Emitter-base voltage	V_{EBO}	-5.0	V
Peak pulse current	I_{CM}	-2	A
Continuous collector current *	I_C	-1	A
Peak base current	I_{BM}	-1	A
Power dissipation @ $T_A=25^{\circ}\text{C}$ *	P_D	350	mW
Operating and storage temperature	$T_j:T_{stg}$	-55 to +150	$^{\circ}\text{C}$

NOTES:

* For a device surface mounted on a 15mm x 15mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.

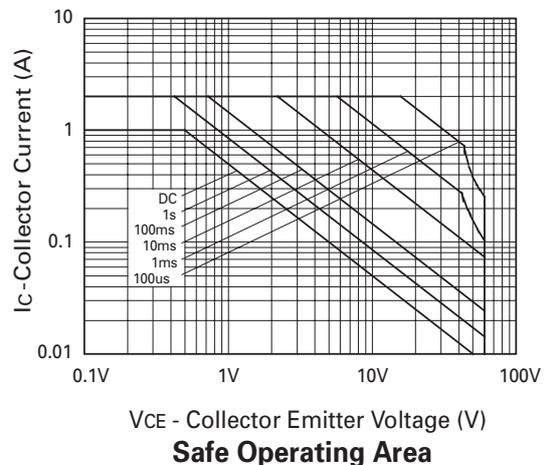
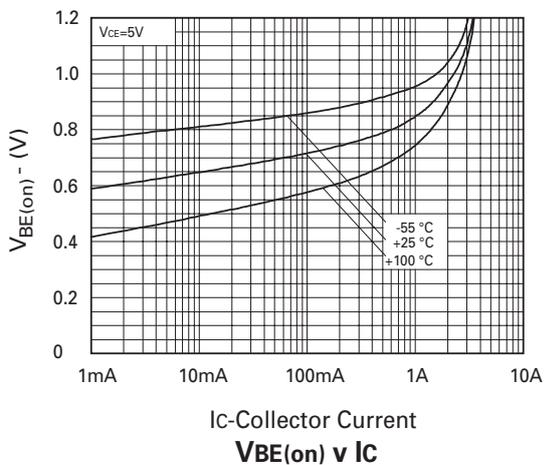
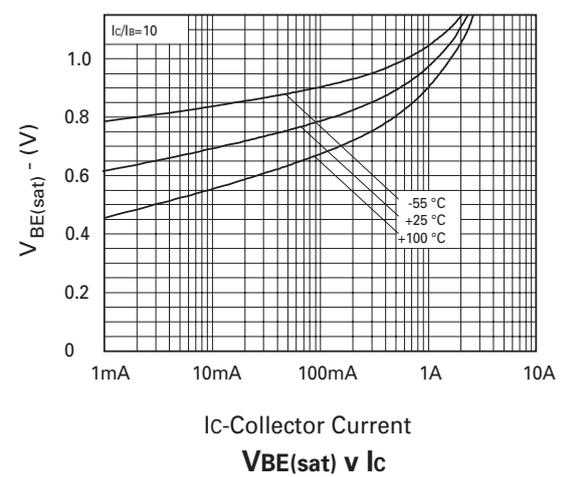
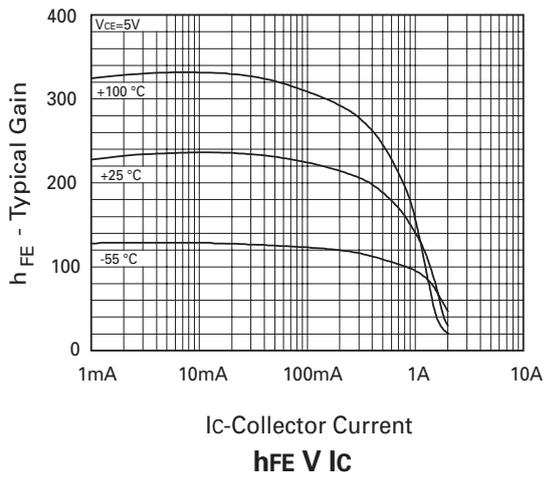
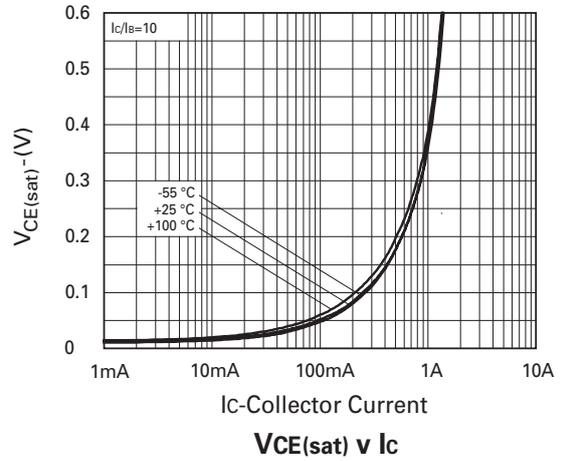
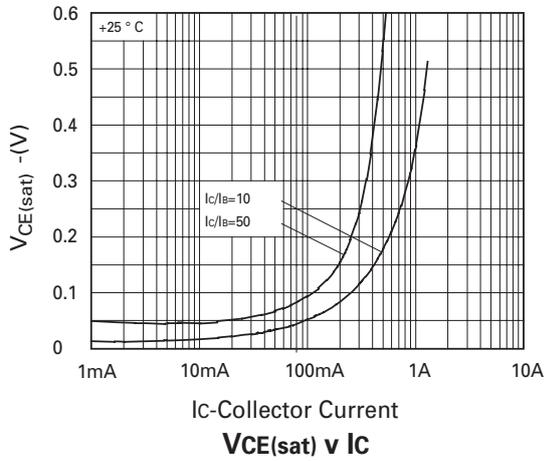
Electrical characteristics (@T_{AMB} = 25°C)

Parameter	Symbol	Min	Max	Unit	Conditions
Collector-base breakdown voltage	$V_{(BR)CBO}$	-80		V	$I_C = -100\mu A$
Collector-emitter breakdown voltage	$V_{(BR)CEV}$	-80		V	$I_C = -1\mu A$ $-0.3V < V_{BE} < 1V$
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	-60		V	$I_C = -10mA^*$
Emitter-base breakdown voltage	$V_{(BR)EBO}$	-5		V	$I_E = -100\mu A$
Collector-emitter cut-off current	I_{CES}		-100	nA	$V_{CE} = -60V$
Collector-base cut-off current	I_{CBO}		-100	nA	$V_{CB} = -60V$
Emitter-base cut-off current	I_{EBO}		-100	nA	$V_{EB} = -4V$
Static forward current transfer ratio	h_{FE}	100 100 80 15	300		$I_C = -1mA, V_{CE} = -5V$ $I_C = -500mA, V_{CE} = -5V^*$ $I_C = -1A, V_{CE} = -5V^*$ $I_C = -2A, V_{CE} = -5V^*$
Collector-emitter saturation voltage	$V_{CE(sat)}$		-0.2 -0.3 -0.6	V V V	$I_C = -100mA, I_B = -2mA^*$ $I_C = -500mA, I_B = -50mA^*$ $I_C = -1A, I_B = -100mA^*$
Base-emitter saturation voltage	$V_{BE(sat)}$		-1.2	V	$I_C = -1A, I_B = -100mA^*$
Base-emitter turn-on voltage	$V_{BE(on)}$		-1.0	V	$I_C = -1A, V_{CE} = -5V^*$
Transition frequency	f_T	150			$I_C = -50mA, V_{CE} = -10V$ $f = 100MHz$
Output capacitance	C_{obo}		10	pF	$V_{CB} = -10V, f = 1MHz$

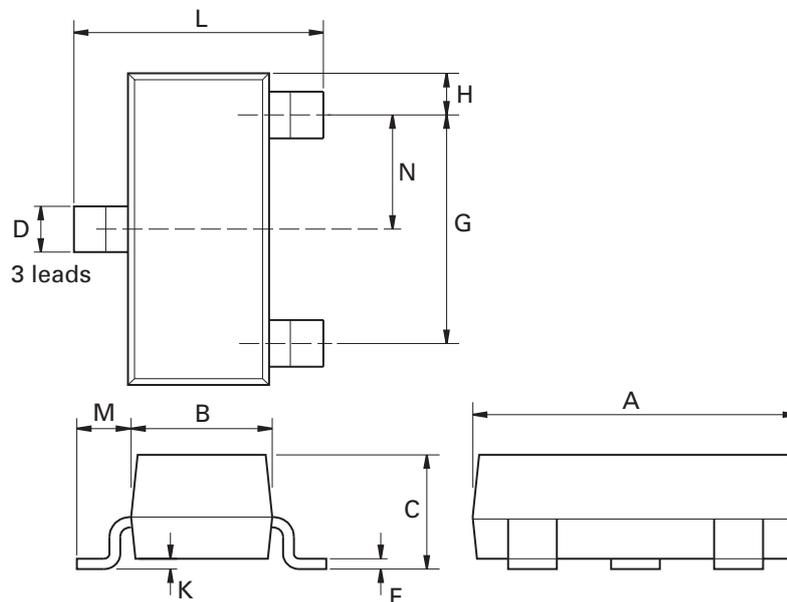
NOTES:

* Measured under pulsed conditions. Pulse width=300μS. Duty cycle ≤2%
Spice parameter data is available upon request for this device

Typical characteristics



Packaging details - SOT23



Package dimensions

Dimensions in inches are control dimensions, dimensions in millimeters are approximate.

Dim	Millimeters		Inches		Dim	Millimeters		Inches	
	Min	Max	Min	Max		Min	Max	Max	Max
A	2.67	3.05	0.105	0.120	H	0.33	0.51	0.013	0.020
B	1.20	1.40	0.047	0.055	K	0.01	0.10	0.0004	0.004
C	-	1.10	-	0.043	L	2.10	2.50	0.083	0.0985
D	0.37	0.53	0.015	0.021	M	0.45	0.64	0.018	0.025
F	0.085	0.15	0.0034	0.0059	N	0.95 Nom.		0.0375 Nom.	
G	1.90 Nom.		0.075 Nom.		-	-	-	-	-