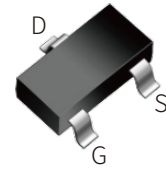


FEATURES

- | Surface-mounted package
- | Advanced trench cell design



SOT-23

APPLICATION

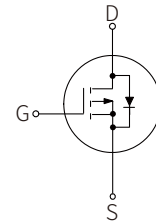
- | Portable appliances
- | High speed switch



Marking

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003



Schematic Symbol

LIMITING VALUES

Parameter	Symbol	Conditions	Min	Max	Unit
Drain-Source Voltage	V_{DS}	$T_A = 25\text{ }^\circ\text{C}$		-100	V
Gate Threshold Voltage	V_{GS}	$T_A = 25\text{ }^\circ\text{C}$		± 20	V
Drain Current	I_D^*	$T_A = 25\text{ }^\circ\text{C}, V_{GS} = -10\text{ V}$		-1.5	A
Pulsed Drain Current	I_{DM}^{***}	$T_A = 25\text{ }^\circ\text{C}, V_{GS} = -10\text{ V}$		-3.6	
Total Power Dissipation	P_{tot}^*	$T_A = 25\text{ }^\circ\text{C}$		0.96	W
Storage Temperature	T_{stg}		-55	150	$^\circ\text{C}$
Junction Temperature	T_J		-55	150	$^\circ\text{C}$
Diode Forward Current	I_S	$T_A = 25\text{ }^\circ\text{C}$		-1.5	A
Thermal Resistance- Junction to Ambient	$R_{\theta JA}^*$			130	$^\circ\text{C/W}$

Notes:

* Surface Mounted on 1 in² pad area, $t \leq 10\text{ sec}$

** Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$

*** limited by bonding wire

ELECTRICAL CHARACTERISTICS (T_A=25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _{DS} =-250μA	-100			V
Gate Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V			±100	nA
Drain Leakage Current	I _{DSS}	V _{DS} =-80V, V _{GS} =0V			1	μA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _{DS} =-250μA	-1.0		-2.5	V
On-State Resistance	R _{DS(on)} ^a	V _{GS} =-10V, I _{DS} =-0.9A		440	500	mΩ
		V _{GS} =-4.5V, I _{DS} =-0.5A		470	550	mΩ
Diode Characteristics						
Diode Forward Voltage	V _{SD} ^a	I _{SD} =-0.9A, V _{GS} =0V			-1.3	V
Reverse Recovery Time	t _{rr}	I _{SD} =-0.9A, dI _{SD} /dt = 100 A / μs		17		nS
Reverse Recovery Charge	Q _{rr}			13		nC
Dynamic Characteristics^b						
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =-50V Frequency = 1 MHz		460		pF
Output Capacitance	C _{oss}			17		pF
Reverse Transfer Capacitance	C _{riss}			16		pF
Turn-on Delay Time	t _{d(on)}	V _{DS} =-50V, V _{GEN} =-10V R _G =3.9Ω, R _L =55Ω I _{DS} = -0.9 A		3.8		ns
Turn-on Rise Time	t _r			3.2		ns
Turn-Off Delay Time	t _{d(off)}			54		ns
Turn-off Fall Time	t _f			25		ns
Gate Charge Characteristics^b						
Total Gate Charge	Q _g	V _{GS} = -10 V, V _{DS} = -50 V, I _{DS} = -0.9 A		10		nC
Gate-Source Charge	Q _{gs}			1.9		nC
Gate-Drain Charge	Q _{gd}			1.0		nC

Notes: a : Pulse test ; pulse width ≤ 300μs, duty cycle ≤ 2 %

b : Guaranteed by design, not subject to production testing

PARAMETER CHARACTERISTIC CURVE

Figure 1: Power Capability

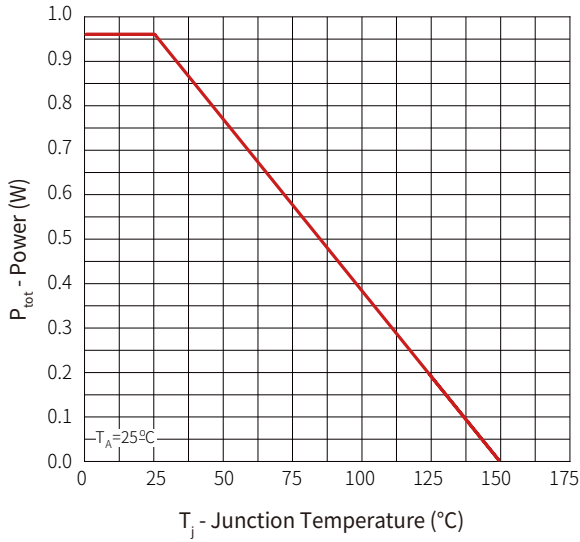


Figure 2: Current Capability

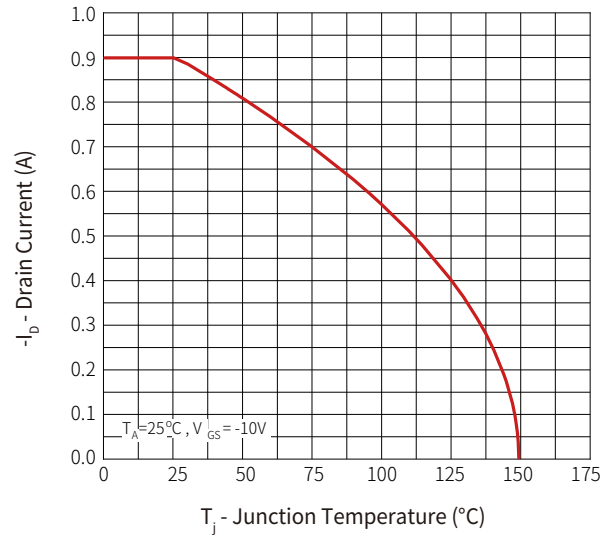


Figure 3: Safe Operating Area

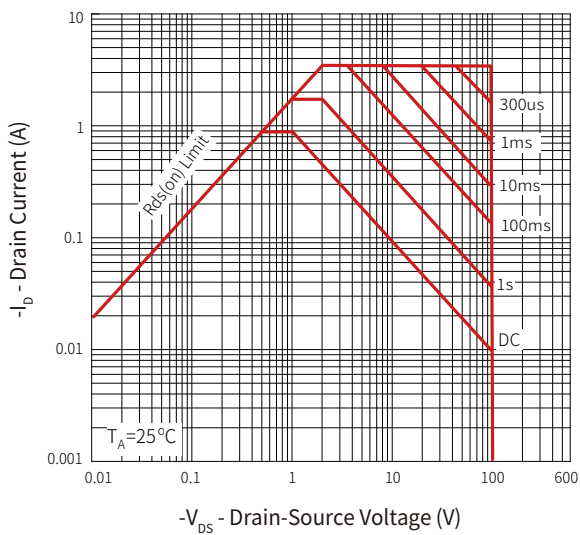


Figure 4: Transient Thermal Impedance

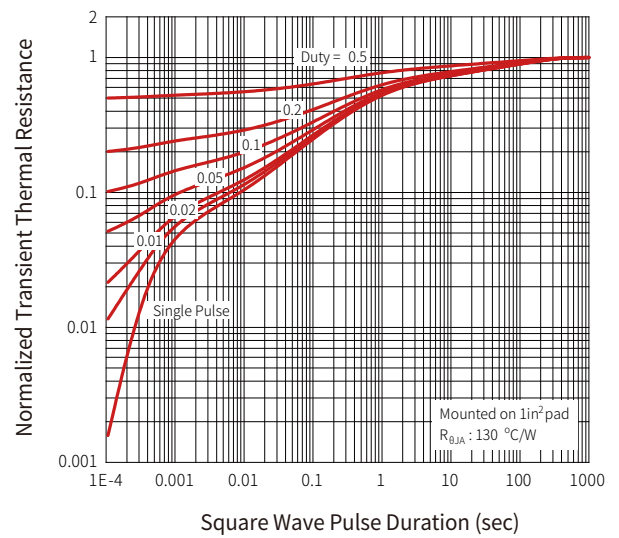


Figure 5: Output Characteristics

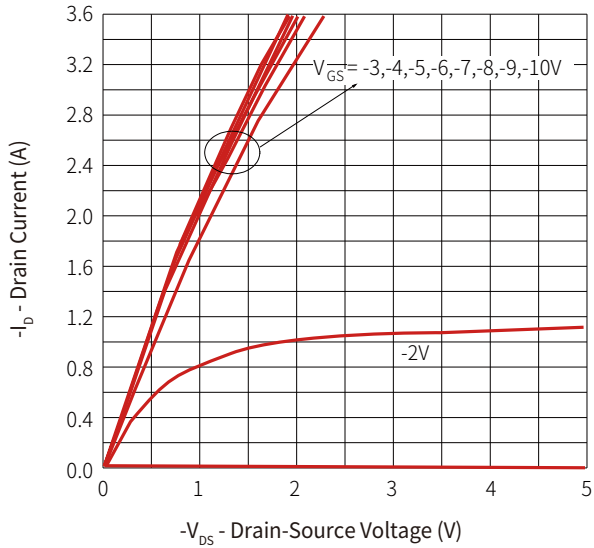


Figure 6: On Resistance

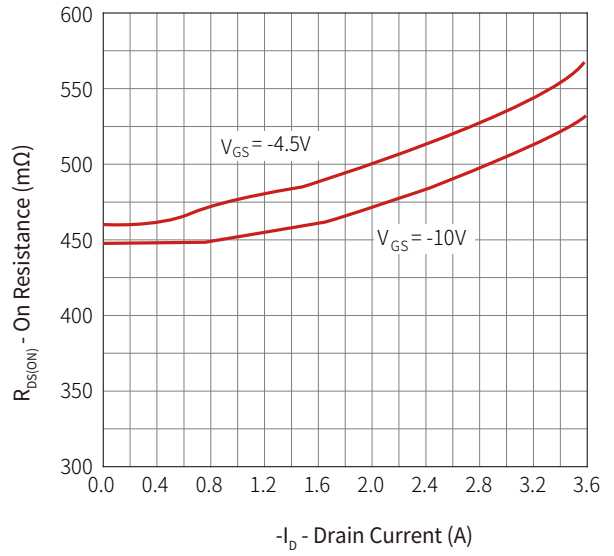


Figure 7: Transfer Characteristics

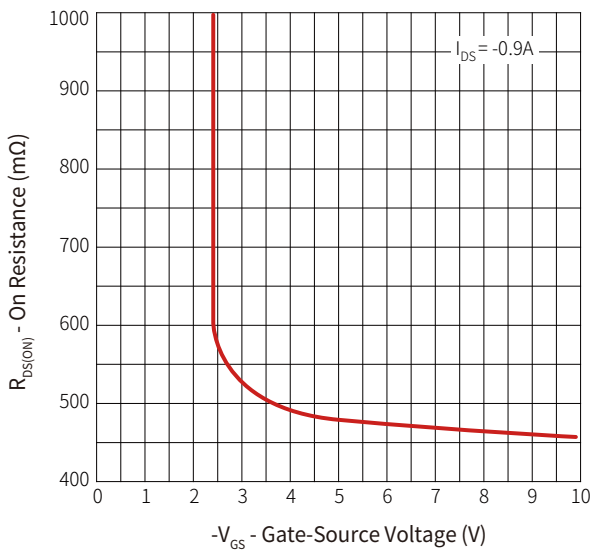


Figure 8: Normalized Threshold Voltage

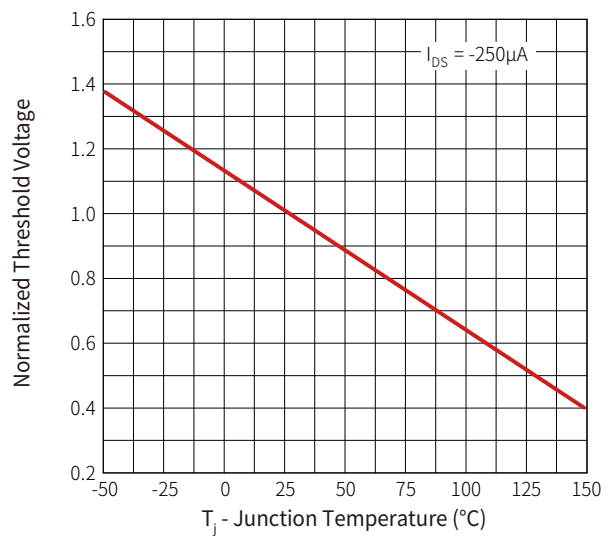


Figure 9: Normalized On Resistance

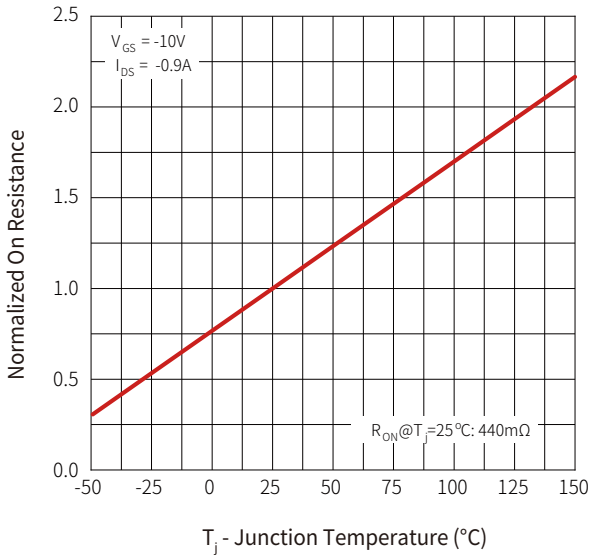


Figure 10: Diode Forward Current

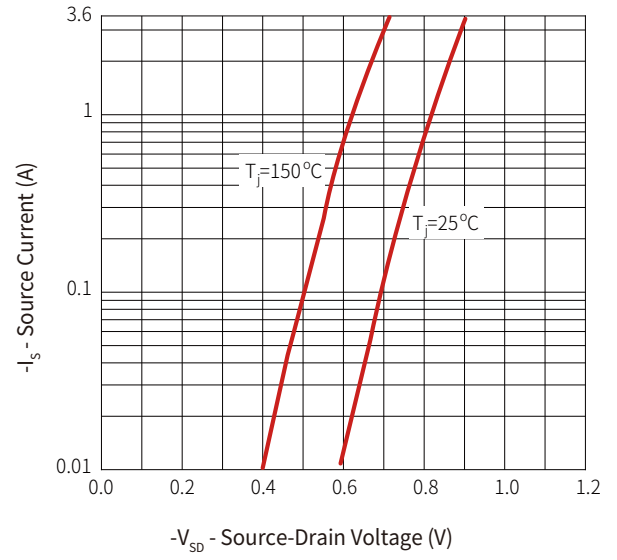


Figure 11: Capacitance

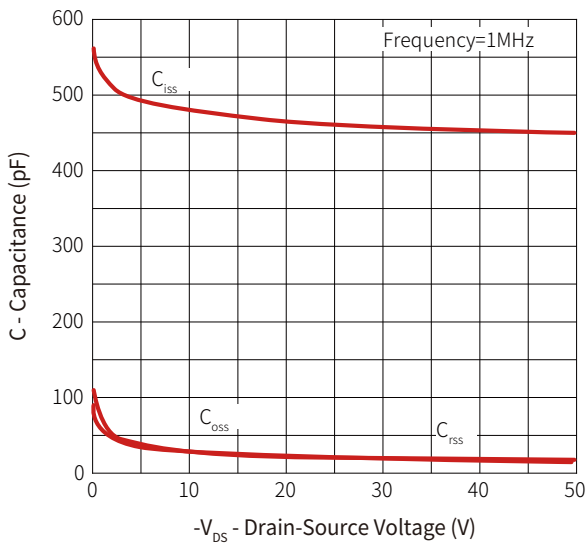
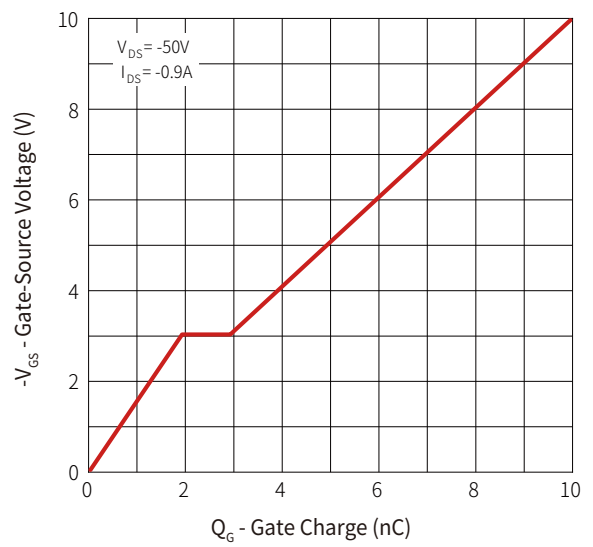
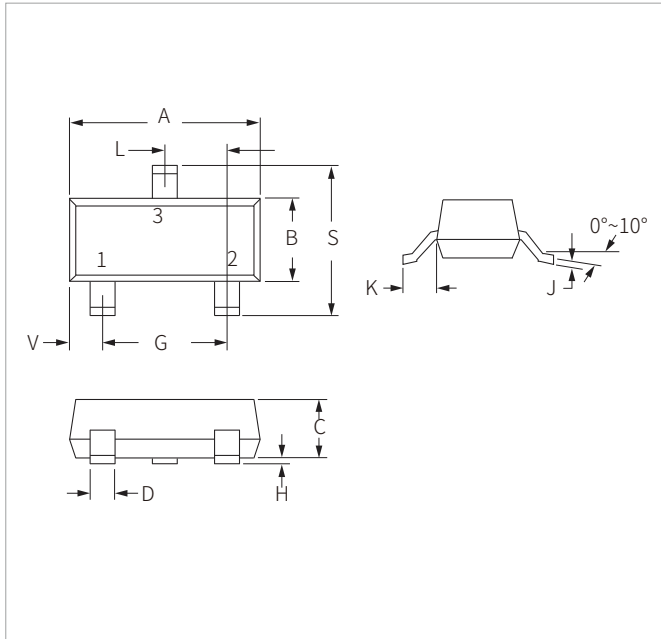


Figure 12: Gate Charge

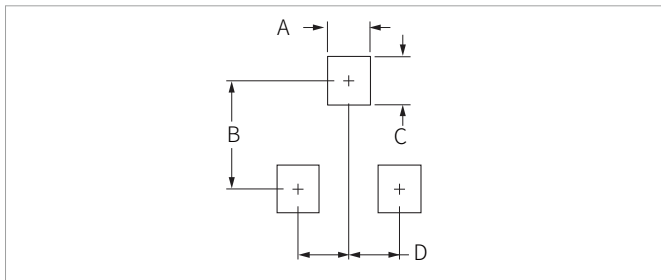


SOT-23 PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.80	3.05	0.110	0.120
B	1.20	1.40	0.047	0.055
C	0.90	1.15	0.035	0.045
D	0.37	0.50	0.015	0.020
G	1.75	2.05	0.069	0.081
H	0.01	0.100	0.001	0.004
J	0.085	0.180	0.003	0.007
K	0.35	0.69	0.014	0.029
L	0.89	1.02	0.035	0.040
S	2.10	2.65	0.083	0.104
V	0.45	0.60	0.018	0.024

RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters		Inches	
	Min	Max	Min	Max
A	0.71	0.97	0.028	0.038
B	1.88	2.13	0.074	0.084
C	0.71	0.97	0.028	0.038
D	0.81	1.07	0.032	0.042

ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
SPMA27SS	SOT-23	3000PCS	7"

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