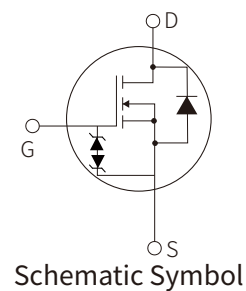


FEATURES

- | High Density Cell Design For Low $R_{DS(On)}$
- | Voltage Controlled Small Signal Switch
- | Rugged and Reliable
- | High Saturation Current Capability
- | ESD Protected

APPLICATION

- | Direct logic-level interface: TTL/CMOS
- | Drivers: relays, solenoids, lamps
- | hammers, display, memories, etc.
- | Battery operated systems
- | Solid-state relays



APPROVALS

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

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	20	V
Drain Current- Pulsed	I_{DM}^{***}	3.6	A
Maximum Drain Current - Continuous $T_A=25^{\circ}\text{C}$	I_D^*	0.9	A
Maximum Drain Current - Continuous $T_A=100^{\circ}\text{C}$	I_D^*	0.57	A
Gate Threshold Voltage	V_{GSS}	± 10	V
Power Dissipation	P_{tot}	0.27	W
Diode Forward Current $T_A=25^{\circ}\text{C}$	I_S	0.9	A
Maximum Junction Temperature	T_J	150	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-55 to 150	$^{\circ}\text{C}$
Maximum Resistance –Junction to Ambient	$R_{\theta JA}^*$	150	$^{\circ}\text{C/W}$

Notes:

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

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

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	20			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _{DS} =250μA	0.5		1	V
Drain Leakage Current	I _{DSS}	V _{DS} =16V, V _{GS} =0V			1	μA
Drain Leakage Current (T _j =85°C)					30	μA
Gate Leakage Current	I _{GSS}	V _{GS} =±10V, V _{DS} =0V			±10	μA
On-State Resistance	R _{DS(on)} ^a	V _{GS} =4.5V, I _{DS} =0.5A		0.19	0.22	Ω
		V _{GS} =2.5V, I _{DS} =0.4A		0.27	0.33	Ω
		V _{GS} =1.8V, I _{DS} =0.3A		0.37	0.48	Ω
Diode Characteristics						
Diode Forward Voltage	V _{SD} ^a	I _{SD} =0.5A, V _{GS} =0V			1.2	V
Dynamic Characteristics ^b						
Input capacitance	C _{iss}	V _{GS} =0V, V _{DS} =10V, Frequency = 1 MHz		101		pF
Output capacitance	C _{oss}			47		pF
Reverse transfer capacitance	C _{rss}			39		pF
Turn-on Delay Time	t _{d(on)}	V _{DS} =10V, V _{GEN} =4.5V R _G = 3.9Ω, R _L =20Ω, I _{DS} =0.5A		68		nS
Turn-on Rise Time	t _r			53		nS
Turn-Off Delay Time	t _{d(off)}			105		nS
Turn-Off Fall Time	t _f			20		nS
Gate Charge Characteristics ^b						
Total Gate Charge	Q _g	V _{DS} =10V, V _{GS} =4.5V, I _{DS} =0.5A		1.02		nC
Gate-Source Charge	Q _{gs}			0.12		nC
Gate-Drain Charge	Q _{gd}			0.15		nC

Notes:

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

b : Guaranteed by design, not subject to production testing

PARAMETER CHARACTERISTIC CURVE

Figure1: Power Dissipation

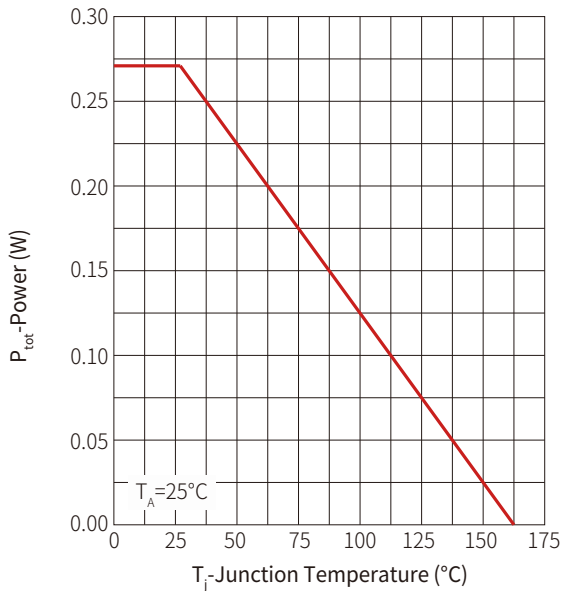


Figure2: Current Capability

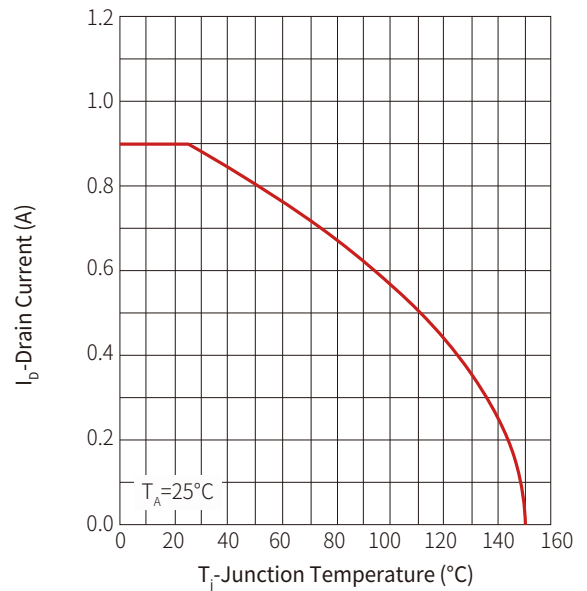


Figure3: Safe Operation Area

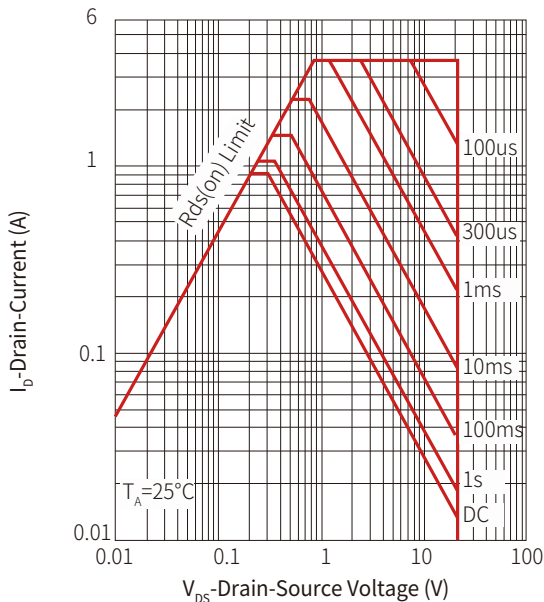


Figure 4: Transient Thermal Impedance

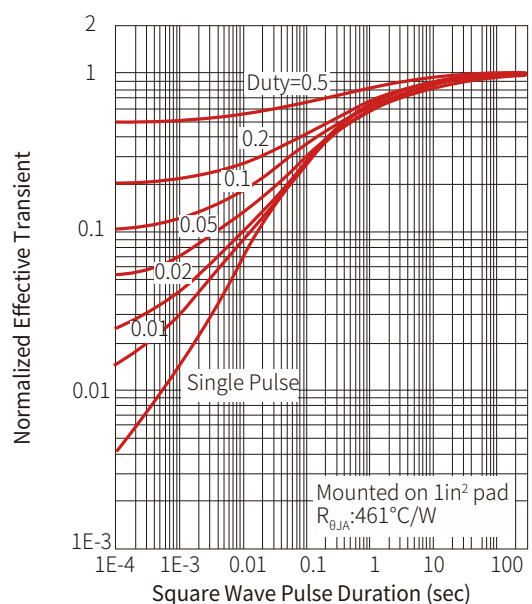




Figure 5: Output Characteristics

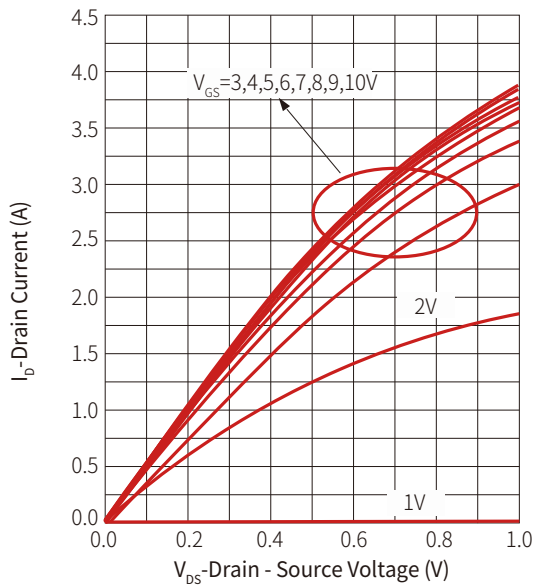


Figure 6: Drain-Source On Resistance

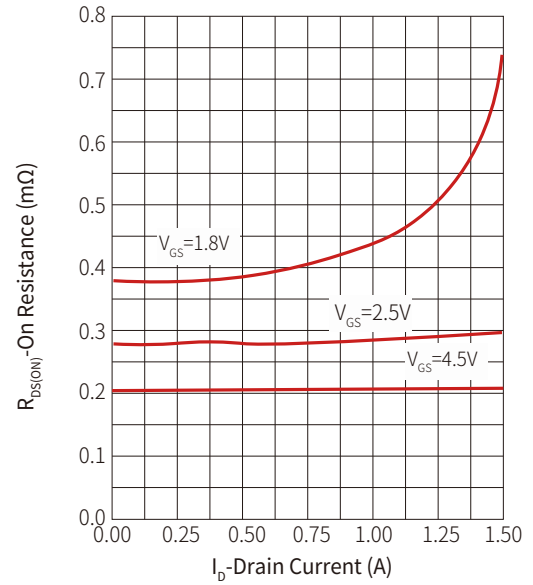


Figure 7: Transfer Characteristics

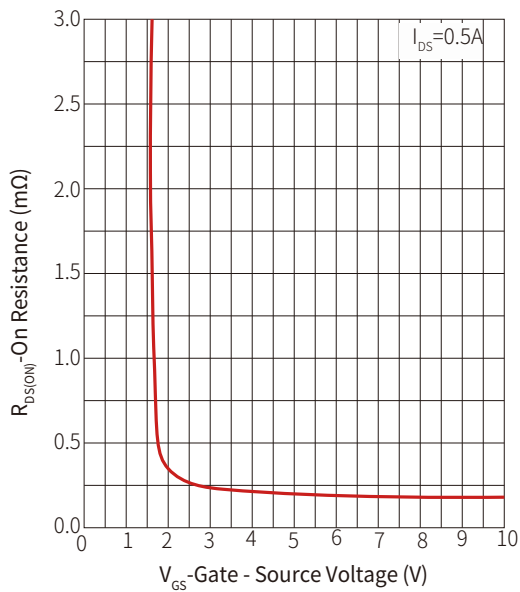


Figure 8: Normalized Threshold Voltage

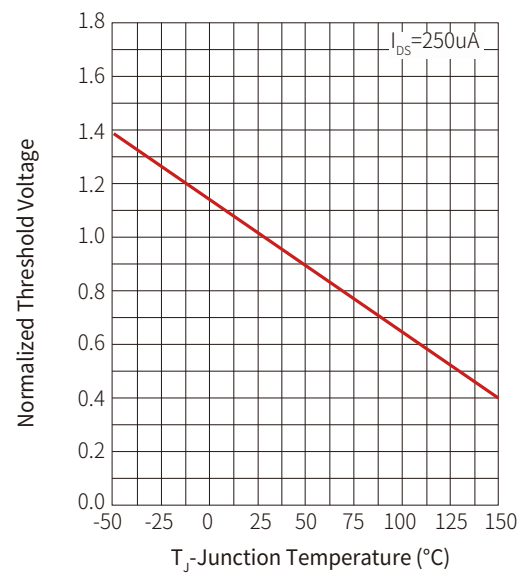
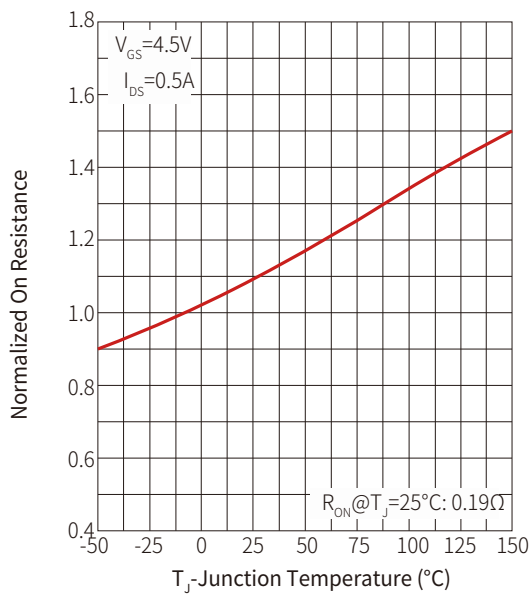
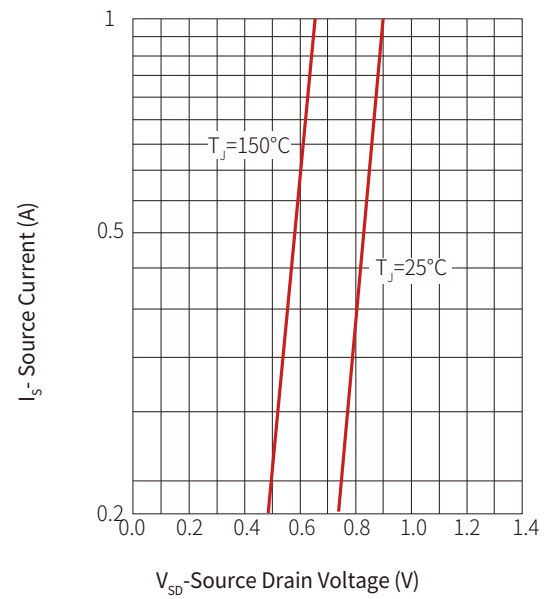
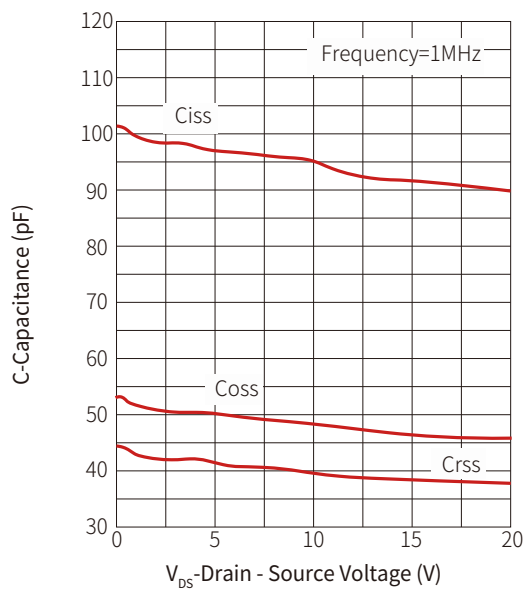
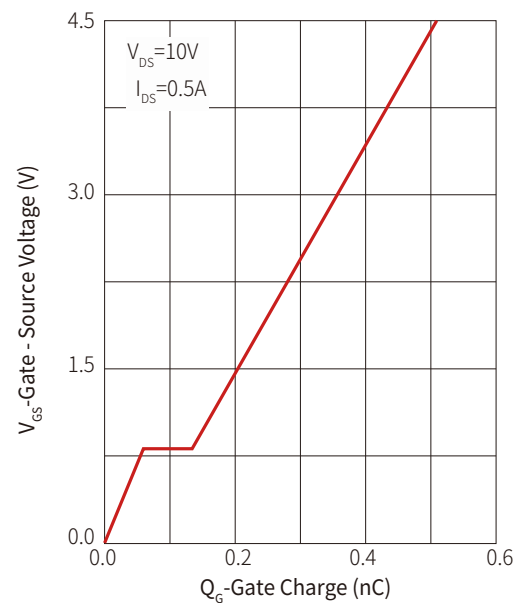
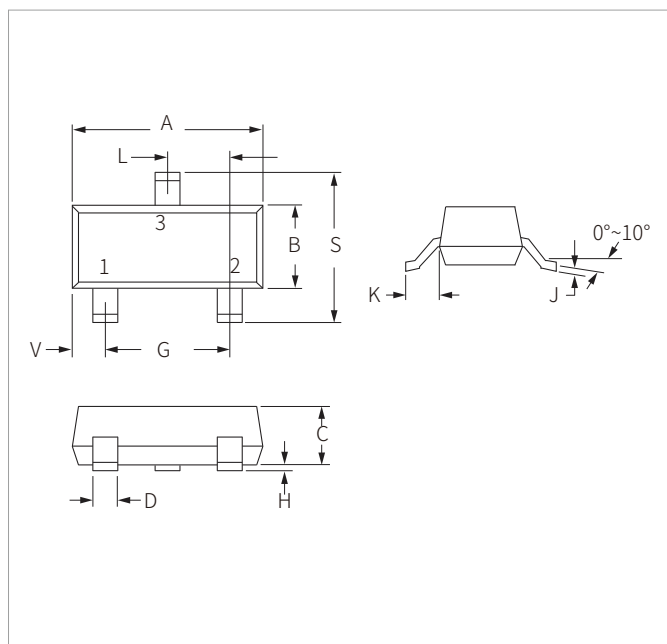


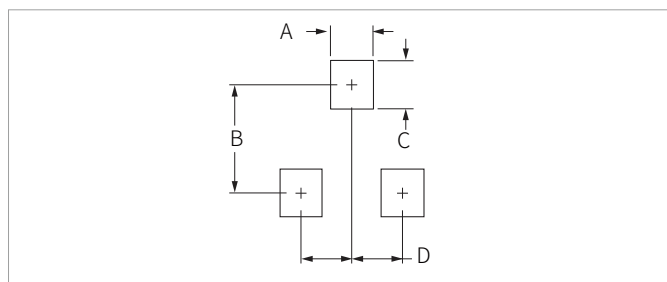
Figure 9: Normalized On Resistance

Figure 10: Current Diode Forward

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
SNM23T1N02E	SOT-23	3000PCS	7"

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By QR Code

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