

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

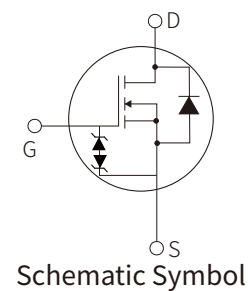
ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	60	V
Drain Current- Pulsed	I_{DM}^{**}	1.6	A
Maximum Drain Current - Continuous $T_A=25^\circ\text{C}$	I_D^*	0.5	A
Gate Threshold Voltage	V_{GSS}	± 20	V
Power Dissipation	P_{tot}	0.43	W
Diode Forward Current $T_A=25^\circ\text{C}$	I_S	0.5	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	$R_{\theta JA}^*$	290	$^\circ\text{C}/\text{W}$

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	60			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _{DS} =250μA	0.5		1.5	V
Drain Leakage Current	I _{DSS}	V _{DS} =48V, V _{GS} =0V			1	μA
Drain Leakage Current (T _J =85°C)					30	μA
Gate Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V			±10	μA
On-State Resistance	R _{DS(on)} ^a	V _{GS} =10V, I _{DS} =0.2A		1	1.2	Ω
		V _{GS} =5V, I _{DS} =0.1A		1.1	1.5	Ω
Diode Characteristics						
Diode Forward Voltage	V _{SD} ^a	I _{SD} =0.2A, V _{GS} =0V			1	V
Dynamic Characteristics^b						
Input capacitance	C _{iss}	V _{GS} =0V, V _{DS} =25V, Frequency = 1 MHz		34		pF
Output capacitance	C _{oss}			3.6		pF
Reverse transfer capacitance	C _{rss}			2.3		pF
Turn-on Delay Time	t _{d(on)}	V _{DS} =30V, V _{GEN} =10V R _G =4.5Ω, R _L =150Ω, I _{DS} =0.2A		2.7		nS
Turn-on Rise Time	t _r			2.7		nS
Turn-Off Delay Time	t _{d(off)}			9.9		nS
Turn-Off Fall Time	t _f			10.8		nS
Gate Charge Characteristics^b						
Total Gate Charge	Q _g	V _{GS} =10V, V _{DS} =30V, I _{DS} =0.2A		1.4		nC
Gate-Source Charge	Q _{gs}			0.4		nC
Gate-Drain Charge	Q _{gd}			0.2		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

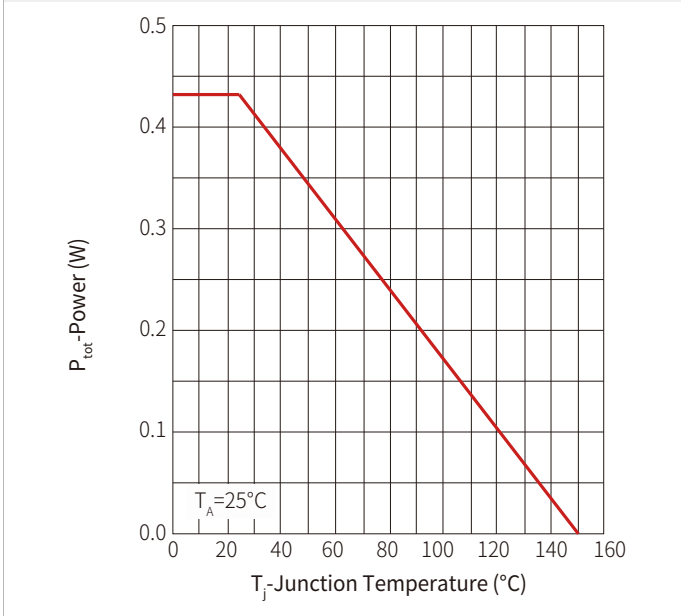


Figure2: Drain Current

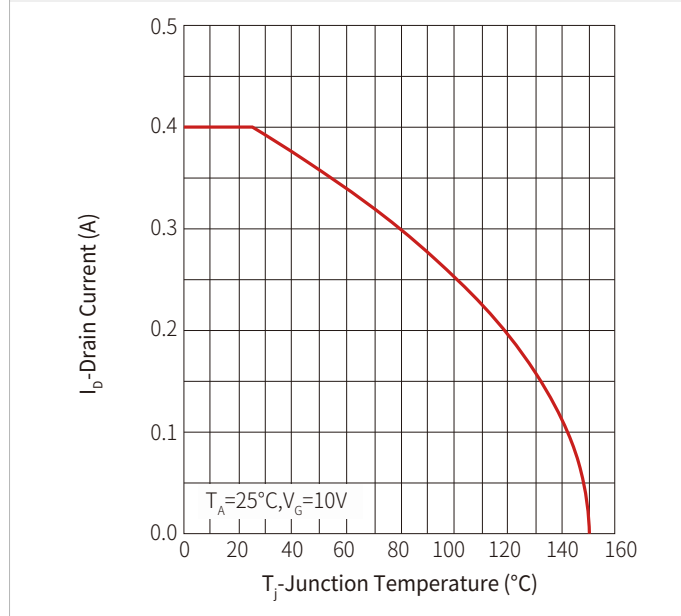


Figure3: Safe Operation Area

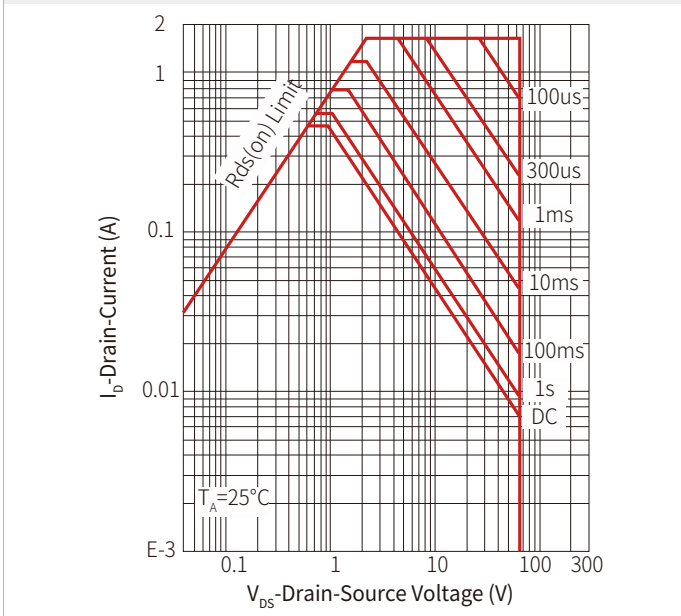


Figure 4: Transient Thermal Impedance

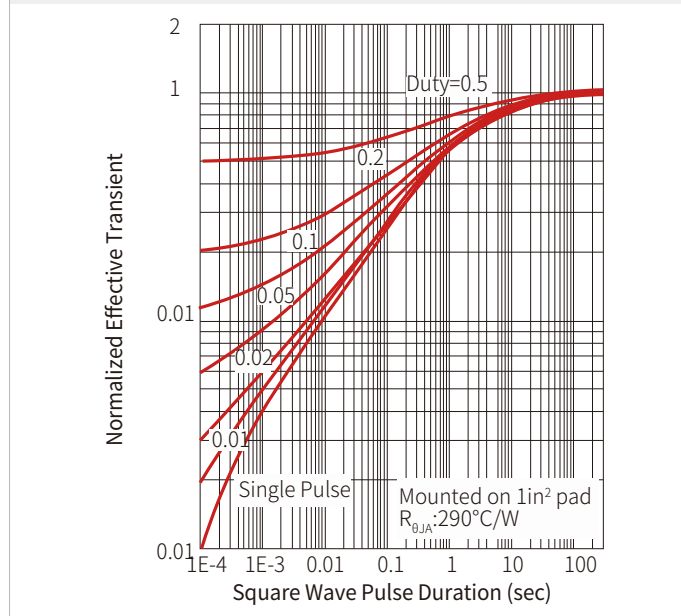


Figure 5: Output Characteristics

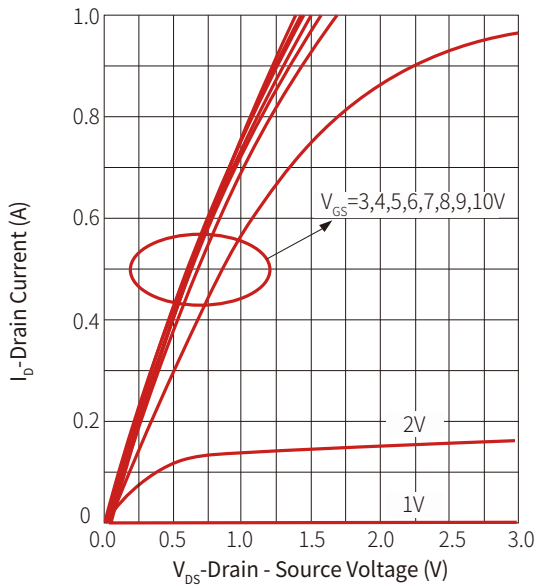


Figure 6: Drain-Source On Resistance

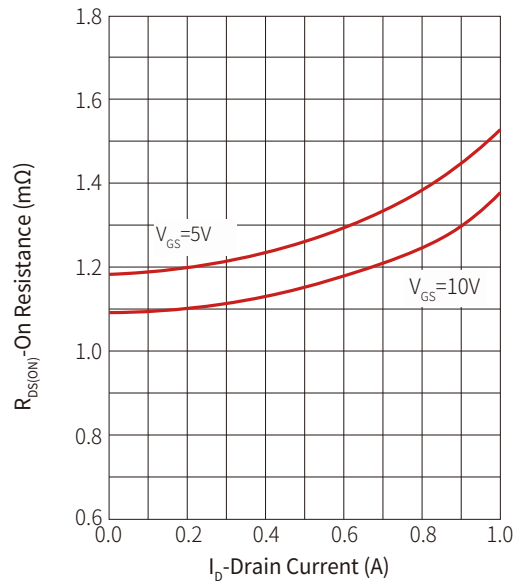


Figure 7: Transfer Characteristics

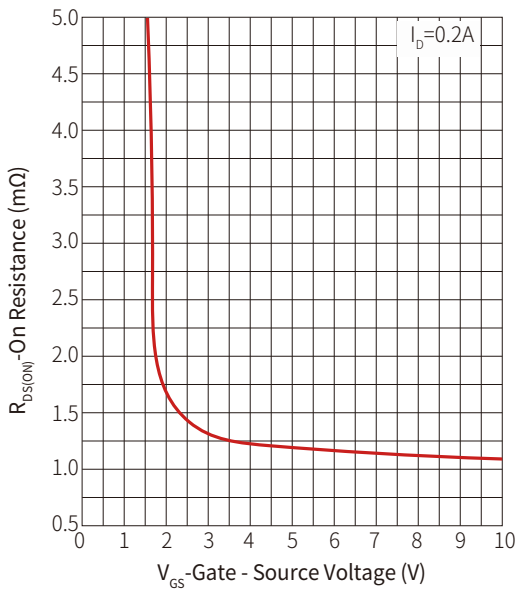


Figure 8: Gate Threshold Voltage

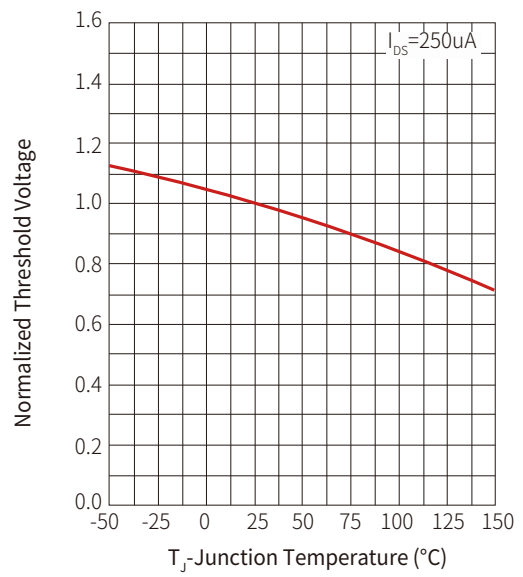


Figure 9: Drain-Source On Resistance

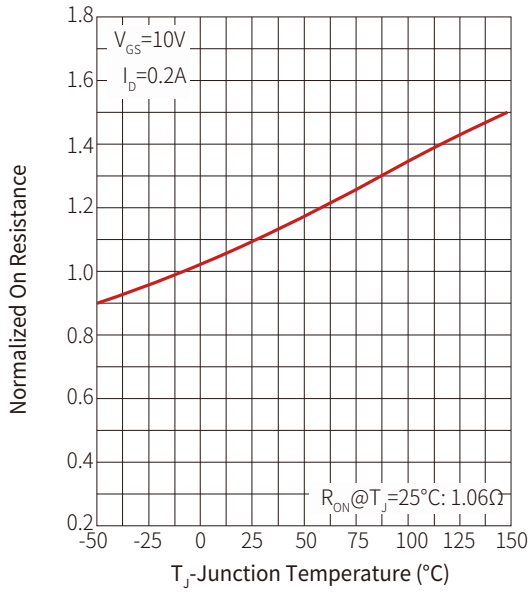


Figure 10: Source-Drain Diode Forward

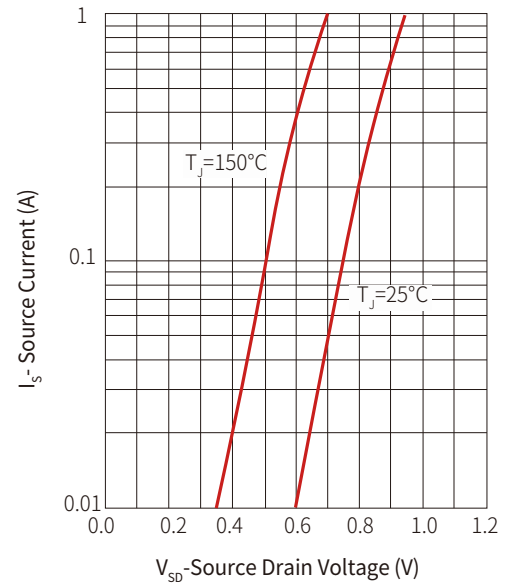


Figure 11: Capacitance

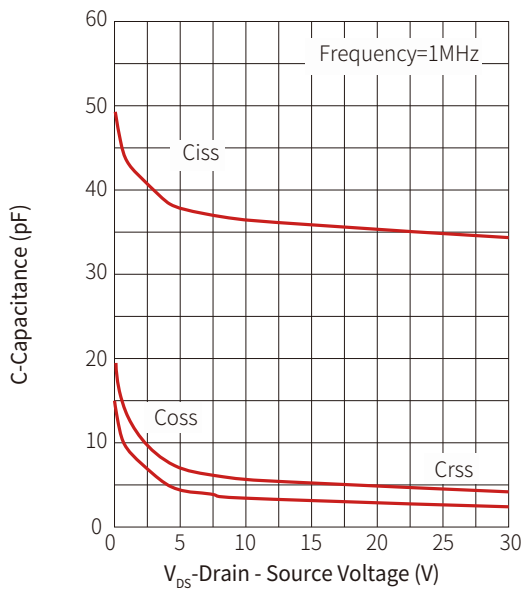
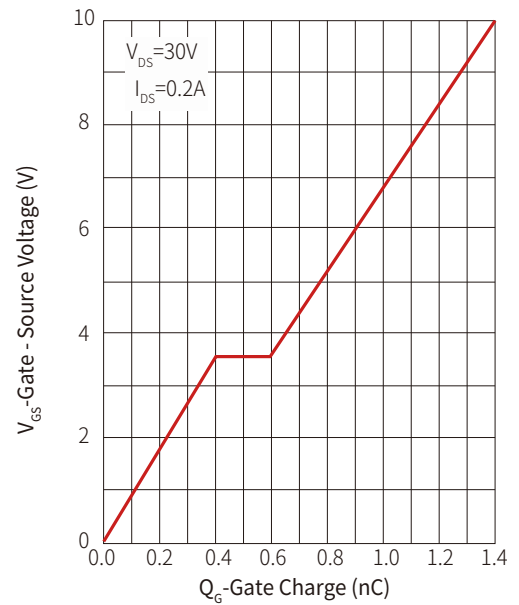
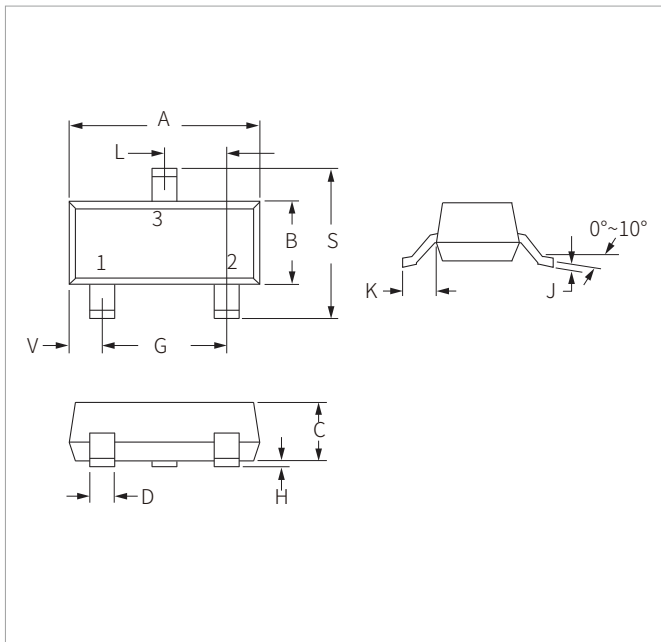


Figure 12: Gate Charge

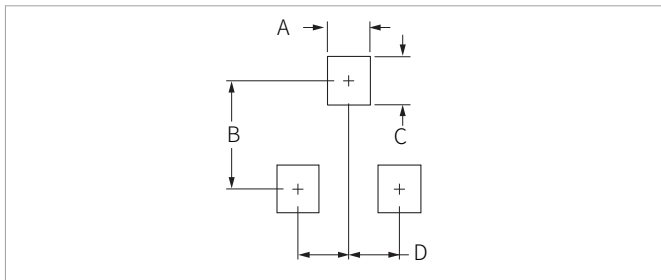


SOT23-3L PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.80	3.15	0.110	0.124
B	1.50	1.70	0.060	0.070
C	1.00	1.30	0.039	0.051
D	0.37	0.50	0.015	0.020
G	1.78	2.10	0.070	0.083
H	0.01	0.15	0.001	0.006
J	0.08	0.18	0.003	0.007
K	0.35	0.69	0.014	0.029
L	0.89	1.02	0.035	0.040
S	2.60	3.00	0.102	0.118
V	0.45	0.60	0.018	0.024

RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.70	1.00	0.028	0.039
B	2.30	2.50	0.090	0.098
C	0.70	1.00	0.028	0.039
D	0.80	1.10	0.032	0.043

ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
SNM23T02N05	SOT23-3L	3000PCS	7"

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