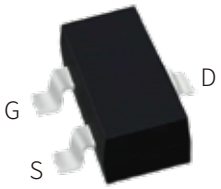
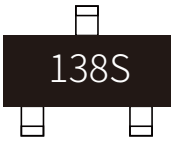
FEATURES

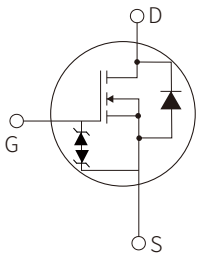
- High Density Cell Design For Low $R_{DS(On)}$
- Voltage Controlled Small Signal Switch
- Rugged and Reliable
- High Saturation Current Capability
- ESD Protected



SOT23-3L



Marking



Schematic Symbol

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°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°C	I_S	0.5	A
Maximum Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to 150	°C
Maximum Resistance –Junction to Ambient	$R_{\theta JA}$*	290	°C/W

Notes:
* Surface Mounted on 1 in^2 pad area, t ⩽10 sec
** Pulse width ⩽300us, duty cycle⩽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≤300us, duty cycle≤2 %
b : Guaranteed by design, not subject to production testing

PARAMETER CHARACTERISTIC CURVE

Figure1: Power Dissipation

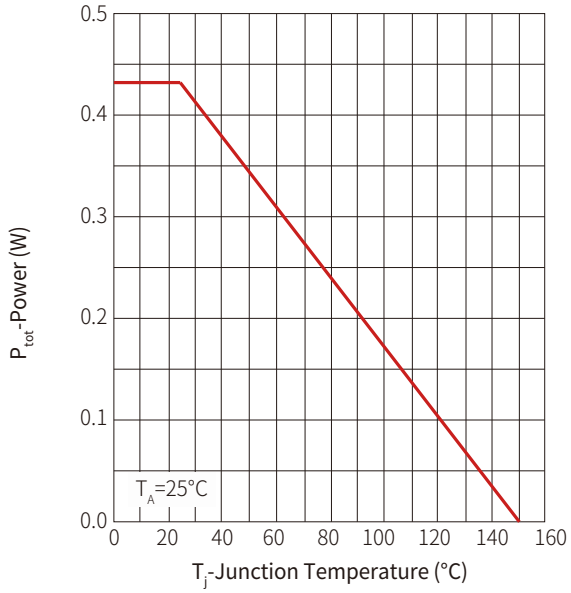


Figure2: Drain Current

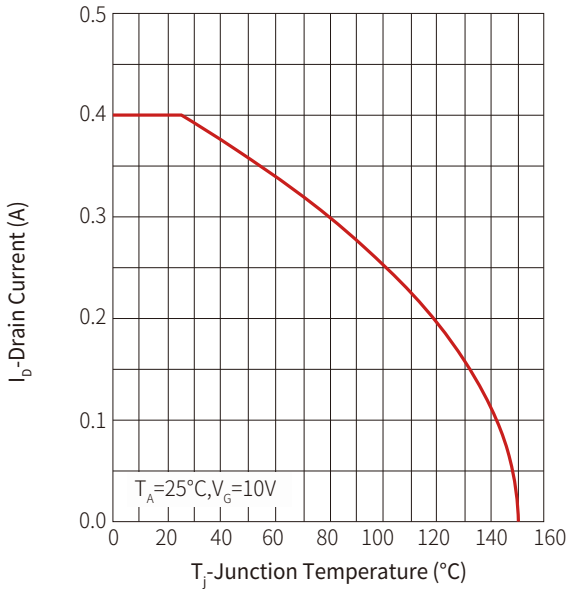


Figure3: Safe Operation Area

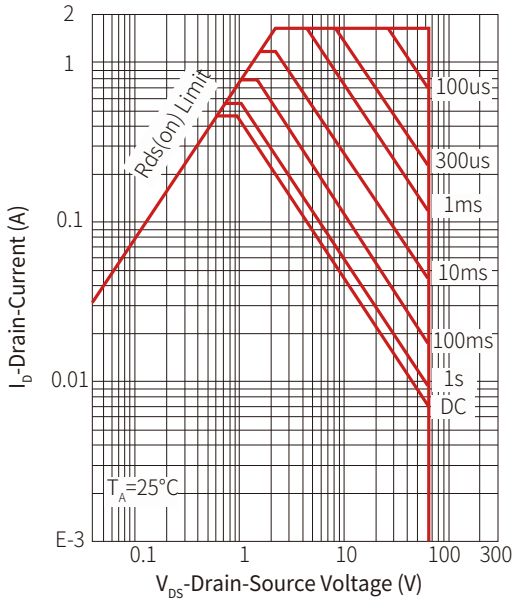


Figure 4: Transient Thermal Impedance

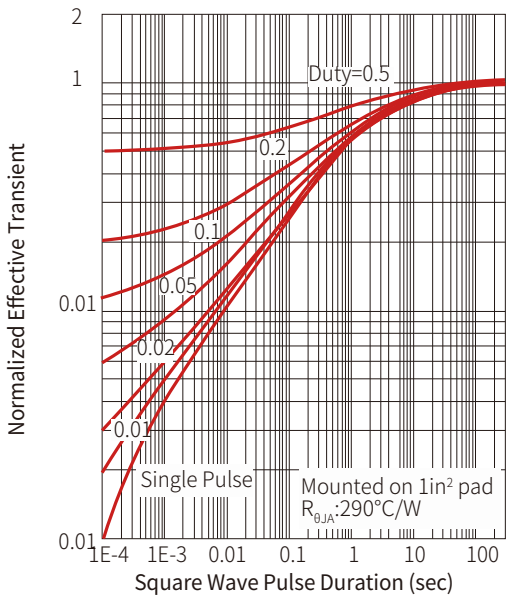


Figure 5:Output Characteristics

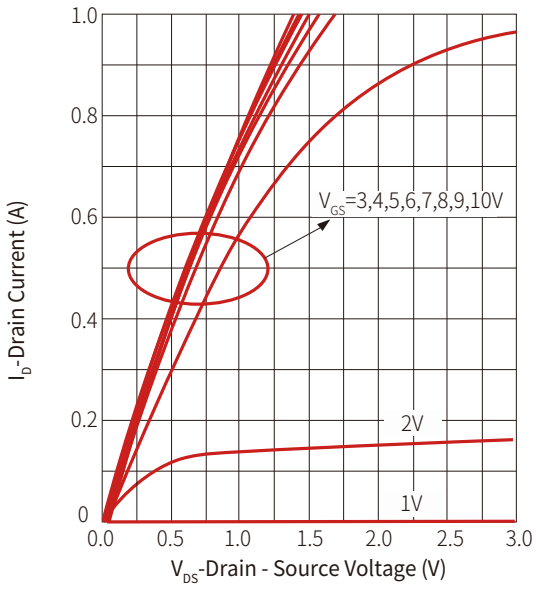


Figure 6: Drain-Source On Resistance

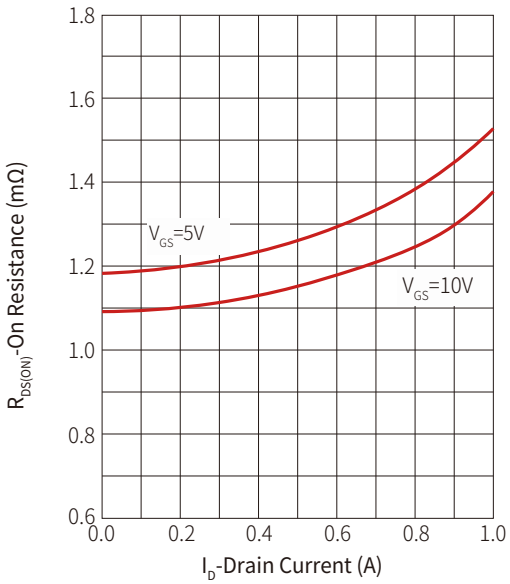


Figure 7:Transfer Characteristics

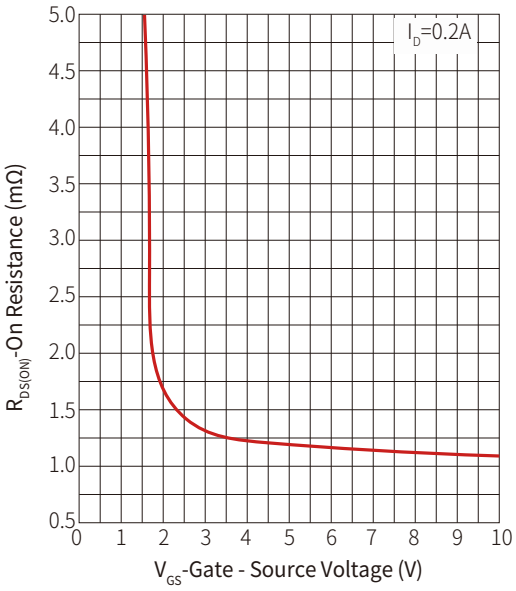


Figure 8: Gate Threshold Voltage

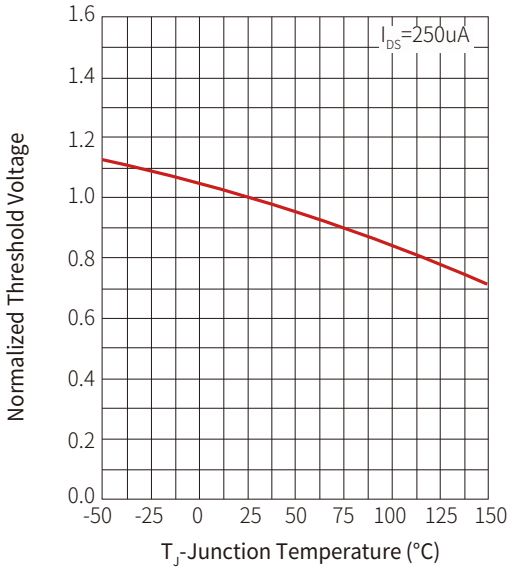


Figure 9:Drain-Source On Resistance

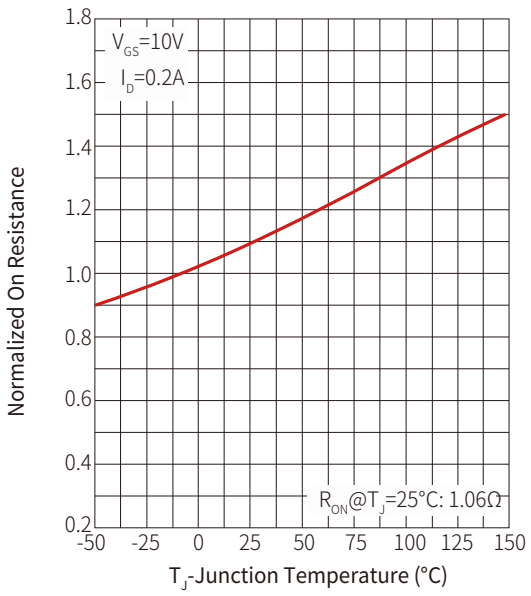


Figure 10: Source-Drain Diode Forward

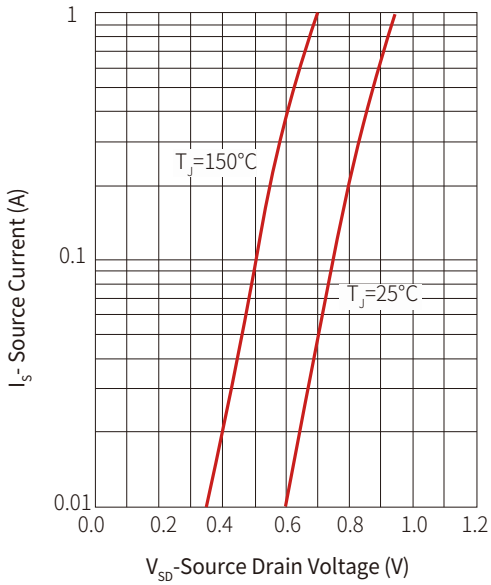


Figure 11:Capacitance

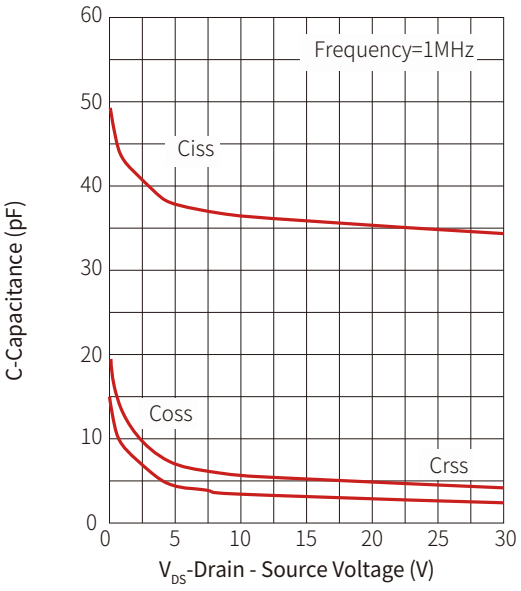
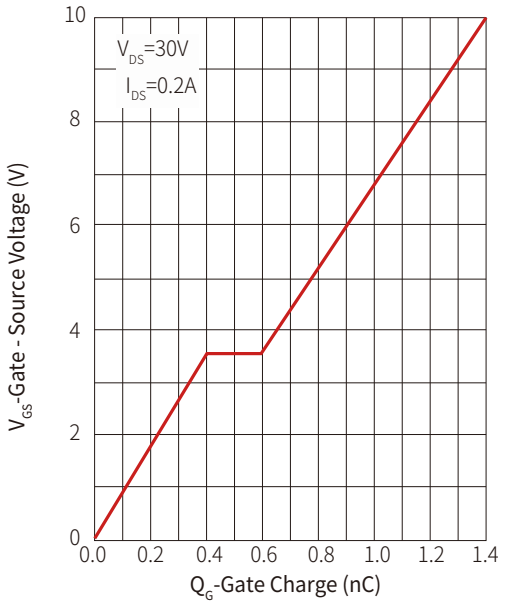
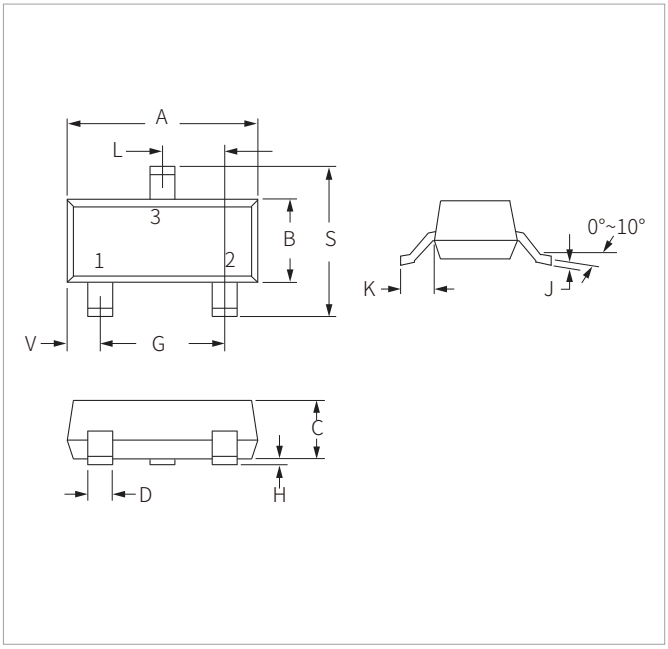


Figure 12: Gate Charge

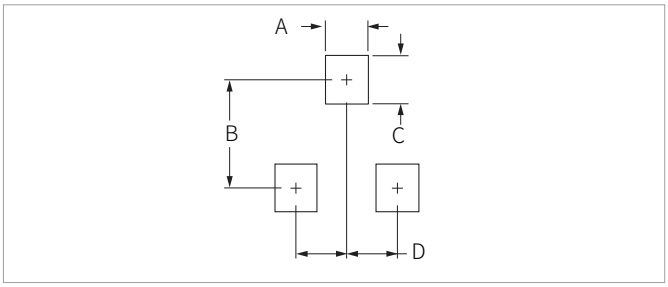


SOT23-3L PACKAGE INFORMATION



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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