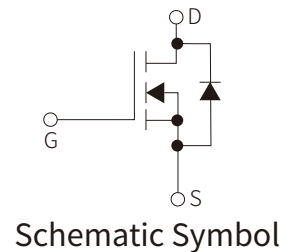


FEATURES

- | High Density Cell Design For Low $R_{DS(On)}$
- | Voltage Controlled Small Signal Switch
- | Rugged and Reliable
- | High Saturation Current Capability
- | Lead free product is acquired



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 ($T_A=25^{\circ}\text{C}$)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 8	V
Continuous Drain Current	I_D	2.3	A
Continuous Source-Drain Current(Diode Conduction)	I_S	0.6	A
Power Dissipation	P_D	0.35	W
Operating Junction	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 to 150	$^{\circ}\text{C}$
Thermal Resistance from Junction to Ambient ($t \leq 5s$)	$R_{\theta JA}$	357	$^{\circ}\text{C}/\text{W}$

ELECTRICAL CHARACTERISTICS (T_A=25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Drain-source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =10μA	20			V
Gate-source leakage ^a	I _{GSS}	V _{DS} =0V, V _{GS} =±8V			±100	nA
Zero gate voltage drain current	I _{DSS}	V _{DS} =20V, V _{GS} =0V			1	uA
Gate-source threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =50μA	0.65	0.95	1.2	V
Drain-source on-state resistance ^a	R _{DS(on)}	V _{GS} =4.5V, I _D =2.5A		0.055	0.085	Ω
		V _{GS} =2.5V, I _D =2.1A		0.070	0.125	Ω
Forward tranconductance ^a	g _{fs}	V _{DS} =5V, I _D =2.5A		8		S
Diode forward voltage ^a	V _{SD}	I _S =0.94A, V _{GS} =0V		0.76	1.2	V
Dynamic						
Input capacitance ^b	C _{iss}	V _{DS} =10V, V _{GS} =0V, f=1MHz		300		pF
Output capacitance ^b	C _{oss}			120		pF
Reverse transfer capacitance ^b	C _{rss}			80		pF
Total gate charge	Q _g	V _{DS} =10V, V _{GS} =4.5V, I _D =2.5A		4.0	10	nC
Gate-source charge	Q _{gS}			0.65		nC
Gate-drain charge	Q _{gD}			1.5		nC
Switching^b						
Turn-on delay time	t _{d(on)}	V _{DD} =10V, V _{GEN} =4.5V I _D =2.5A, R _G =6Ω, R _L =5.5Ω		7	15	ns
Rise Time	t _r			55	80	ns
Turn-Off Delay Time	t _{d(off)}			16	60	ns
Fall yime	t _f			10	25	ns

Notes:

a. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.

b. These parameters have no way to verify.

PARAMETER CHARACTERISTIC CURVE

Figure 1: Output Characteristics

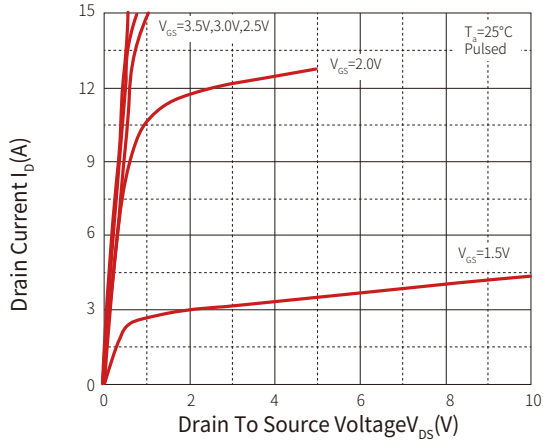


Figure 2: Transfer Characteristics

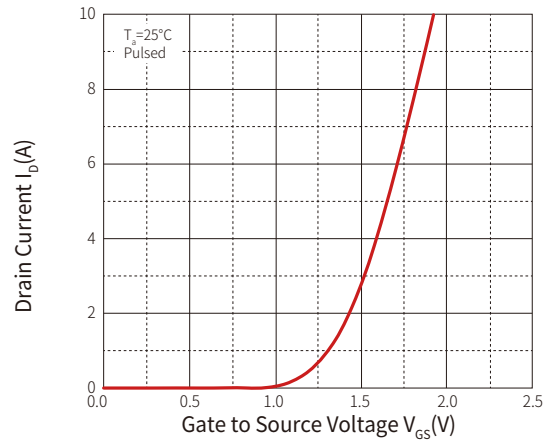


Figure 3: $R_{DS(ON)}$ - I_D

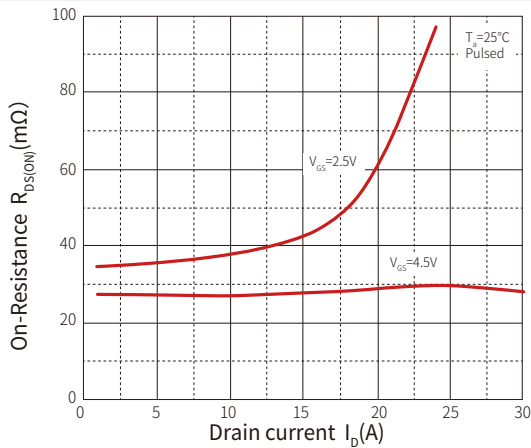
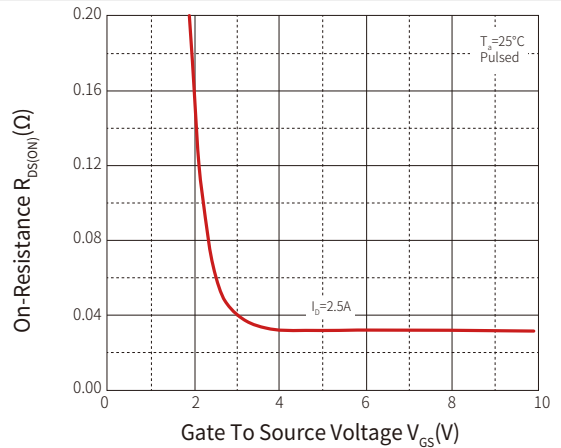
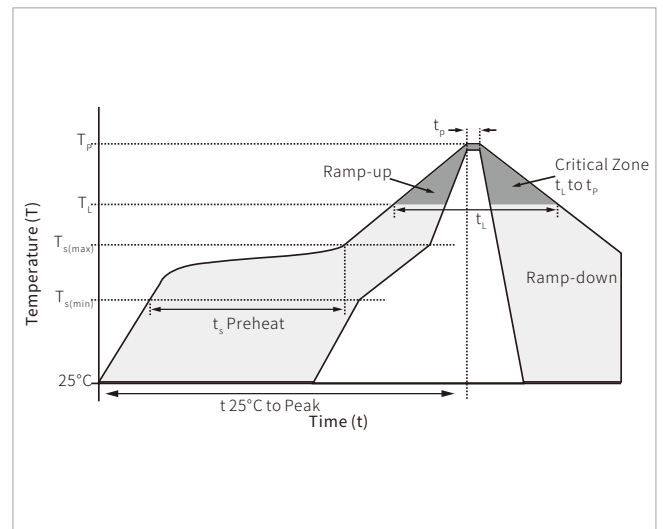


Figure 4: $R_{DS(ON)}$ - V_{GS}

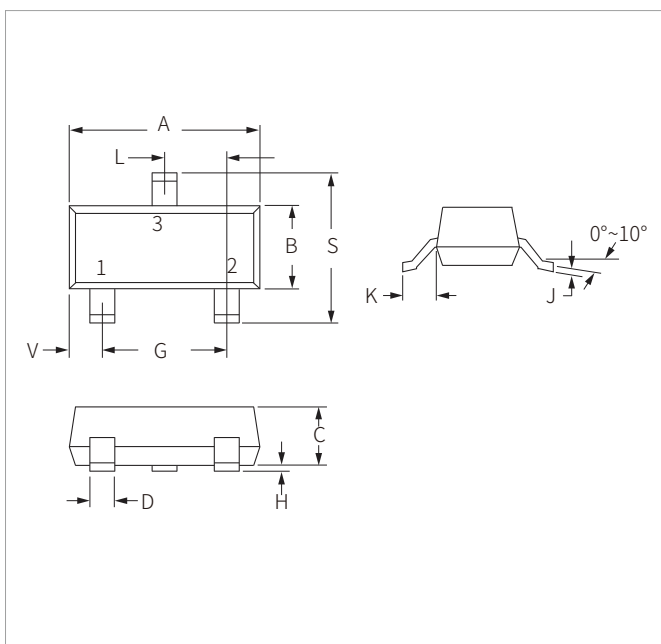


SOLDERING PARAMETERS

Reflow Condition		Lead-free assembly
Pre Heat	Temperature Max ($T_{s(min)}$)	150°C
	Temperature Max ($T_{s(max)}$)	200°C
	Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak)		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Time (min to max) (t_L)	60 – 150 seconds
Peak Temperature (T_p)		260°C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_p)		8 minutes max.
Do not exceed		260°C

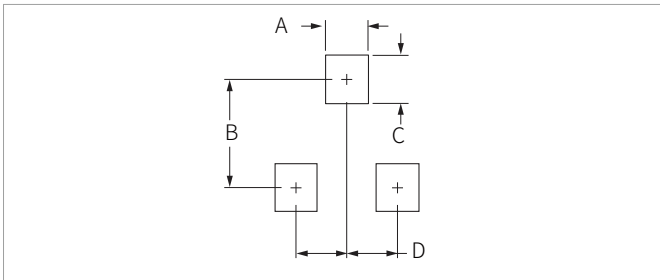


SOT-23 PACKAGE INFORMATION



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
SNM2302	SOT-23	3000PCS	7"

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