N-Channel 30V (D-S) Power MOSFET

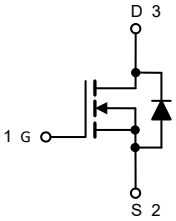
Features

- 100% Avalanche Tested
- Halogen Free, Pb-Free
- RoHS Compliant

SOT-23

Applications

- Relay driver
- Switching circuits
- High-side load switch
- High-speed line driver



Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain Source Voltage		V_{DS}	30	V
Gate Source Voltage		V_{GS}	±12	V
Drain Current, Continuous V_{GS}=10V	T_C=25°C	I_D	5.8	A
	T_C=100°C		4.2	
Drain Current, Pulsed *(Note 1)*		I_{DM}	23	A
Power Dissipation	T_C=25°C	P_D	1.4	W
Operating Junction/ Storage Temperature Range		T_J/ T_{STG}	-55 to +150	°C

Note 1: Single pulse; $t_p \leq 1us$.

Thermal Characteristics

Parameter	Symbol	Max	Unit
Thermal Resistance Junction to Ambient *(Note 2)*	R_{thJA}	90	°C/W

Note 2: Device mounted on 1 square inch FR4 PCB board, with 2oz single-sided copper, in a 25°C still air environment.

Electrical Characteristics (T_A =25°C unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA	30	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=24V, V_{GS}=0V	--	--	1	uA
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}=V_{GS}, I_{DS}=250uA	0.7	--	1.4	V
Gate Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	--	--	±100	nA
Drain-Source On-state Resistance *(Note 3)*	$R_{DS(on)}$	V_{GS}=2.5V, I_D=1.5A	--	52	77	mΩ
Total Gate Charge	Q_g	$V_{GS(off)}$=0V, $V_{GS(on)}$=4.5V, V_{DD}=15V, I_D=5.8A	--	10	--	nC
Gate-Source Charge	Q_{gs}		--	2	--	
Gate-Drain Charge	Q_{gd}		--	3	--	
Turn-on Delay Time	$t_{d(on)}$	V_{GS}=10V, V_{DD}=15V, R_G=3Ω	--	3	--	ns
Turn-on Rise Time	t_r		--	5	--	
Turn-off Delay Time	$t_{d(off)}$		--	26	--	
Turn-off Fall Time	t_f		--	4	--	
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=15V, f=1MHz	--	1245	--	pF
Output Capacitance	C_{oss}		--	85	--	
Reverse Transfer Capacitance	C_{rss}		--	70	--	

Reverse Diode Characteristics (T_A =25°C unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Forward Current, Continuous	I_{SD}	T_C=25°C	--	--	5.8	A
Diode Forward Voltage *(Note 3)*	V_{SD}	I_F=1A, V_{GS}=0V	--	--	1.2	V

Note 3: Pulse test; pulse width ≤ 380μs, duty cycle ≤ 1%.

Typical Characteristics Curves (T_A = 25℃ unless otherwise noted)

Fig.1 - Output Characteristics

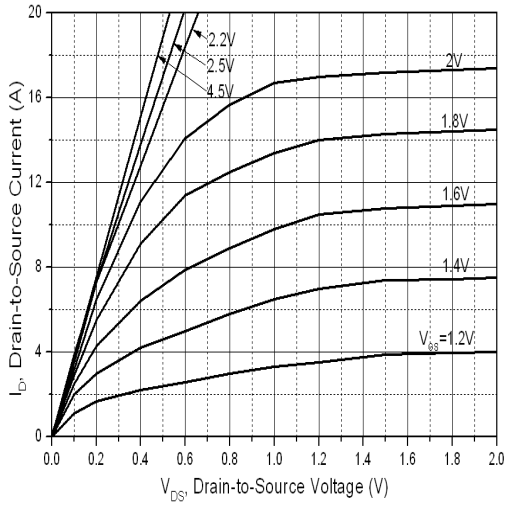


Fig.2 - Transfer Characteristics

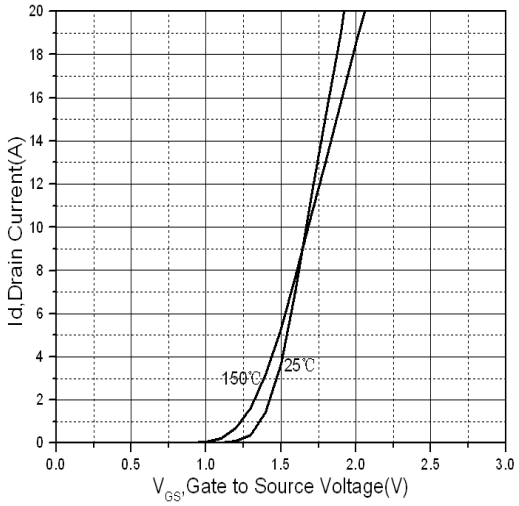


Fig.3 - Gate to source cut-off Voltage

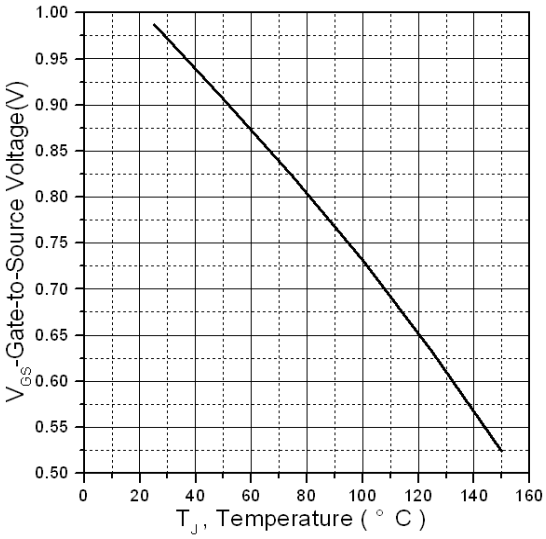


Fig.4 -$V_{(BR)DSS}$ vs. Junction Temperature

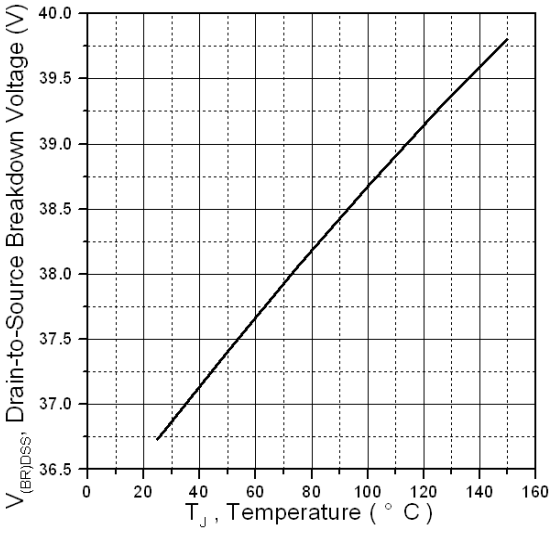


Fig.5 - Drain-Source On-Resistance

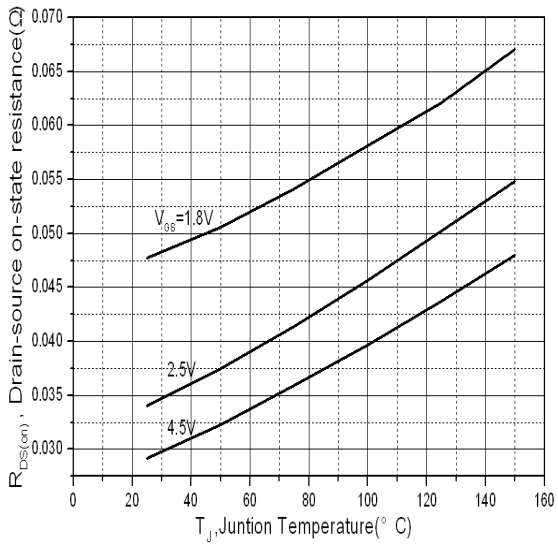
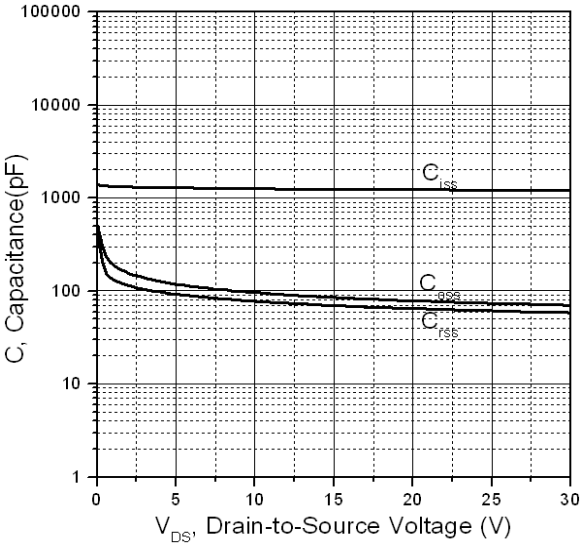
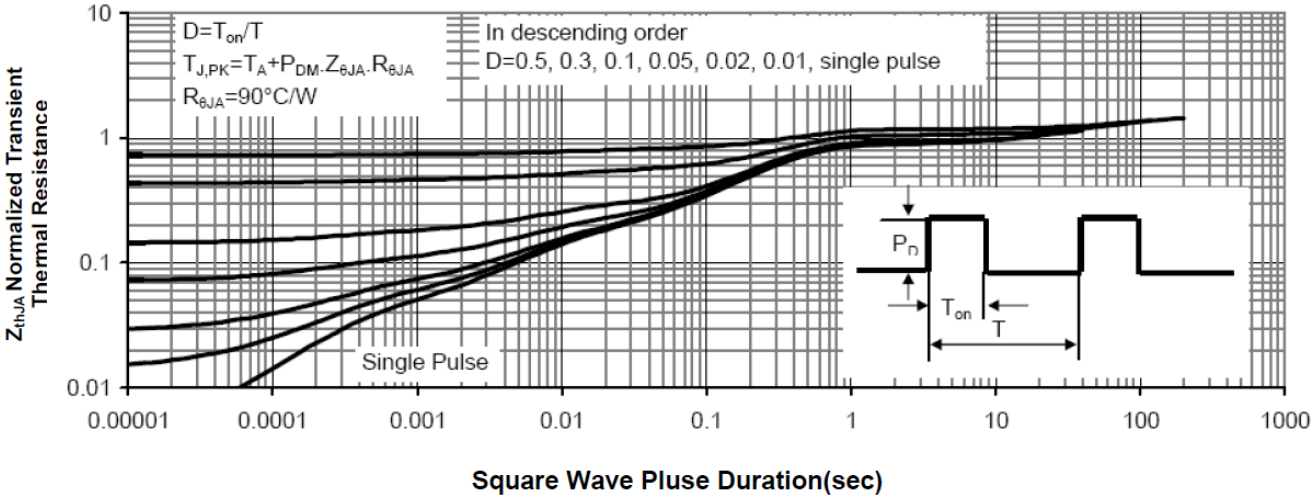


Fig.6 - Capacitance



Typical Characteristics Curves (T_A = 25℃ unless otherwise noted)

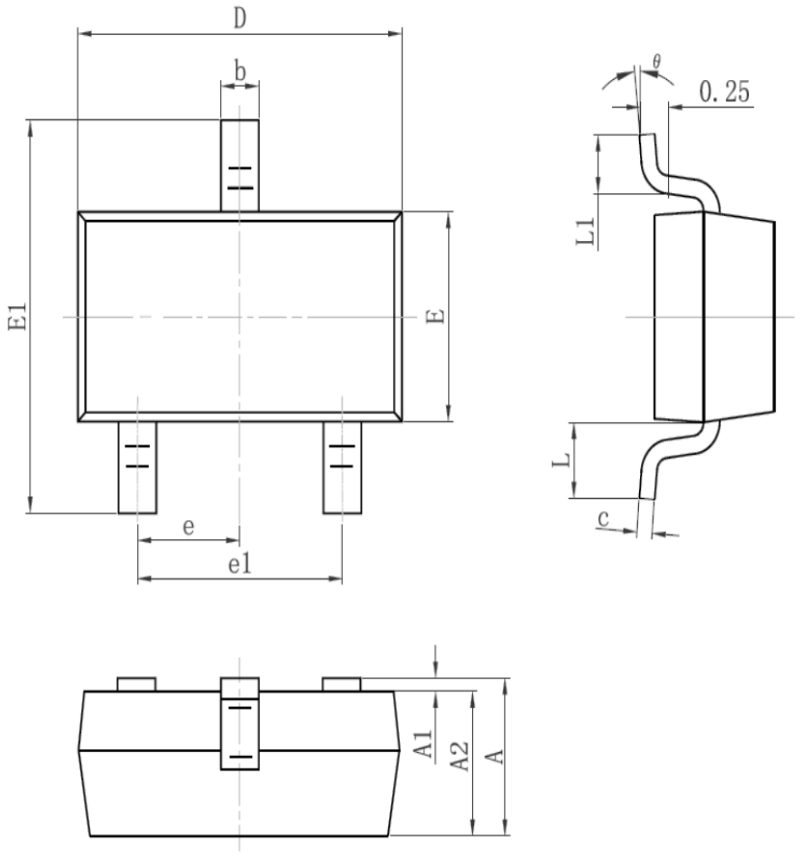
Fig.11 - Normalized Thermal Impedance, Junction-Case



Package Outline Dimensions (Unit: millimeters)

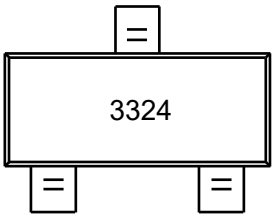
SOT-23

SOT-23 PACKAGE OUTLINE DIMENSION



Symbol	Dimension In Millimeters		Dimension In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.95TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.55REF		0.022REF	
L1	0.300	0.500	0.012	0.020
θ	0^0	8^0	0^0	8^0

Marking Outline



Part Name: GMN3324

1. P/N Mark: 3324

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