N-Channel 20V (D-S) Power MOSFET

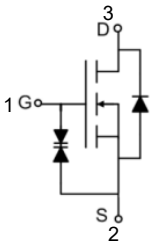
Features

- 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}	20	V
Gate Source Voltage		V_{GS}	±8	V
Drain Current, Continuous V_{GS}=10V	T_C=25°C	I_D	6.5	A
Drain Current, Pulsed *(Note 1)*		I_{DM}	30	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 ≤ 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	20	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V, V_{GS}=0V	--	--	1	uA
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}=V_{GS}, I_{DS}=250uA	0.4	--	1	V
Gate Leakage Current	I_{GSS}	V_{GS}=±4.5V, V_{DS}=0V			±1	uA
		V_{GS}=±8V, V_{DS}=0V	--	--	±10	uA
Drain-Source On-state Resistance *(Note 3)*	$R_{DS(on)}$	V_{GS}=4.5V, I_D=6.5A	--	18	22	mΩ
		V_{GS}=2.5V, I_D=5.5A	--	24	30	
Total Gate Charge	Q_g	$V_{GS(off)}$=0V, $V_{GS(on)}$=4.5V, V_{DD}=10V, I_D=6.5A	--	10	--	nC
Gate-Source Charge	Q_{gs}		--	2.3	--	
Gate-Drain Charge	Q_{gd}		--	3	--	
Turn-on Delay Time	$t_{d(on)}$	V_{GS}=5V, V_{DD}=10V, I_D=1A, R_G=3Ω	--	6.5	--	ns
Turn-on Rise Time	t_r		--	13	--	
Turn-off Delay Time	$t_{d(off)}$		--	50	--	
Turn-off Fall Time	t_f		--	30	--	
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=10V, f=1MHz	--	1160	--	pF
Output Capacitance	C_{oss}		--	200	--	
Reverse Transfer Capacitance	C_{rss}		--	140	--	

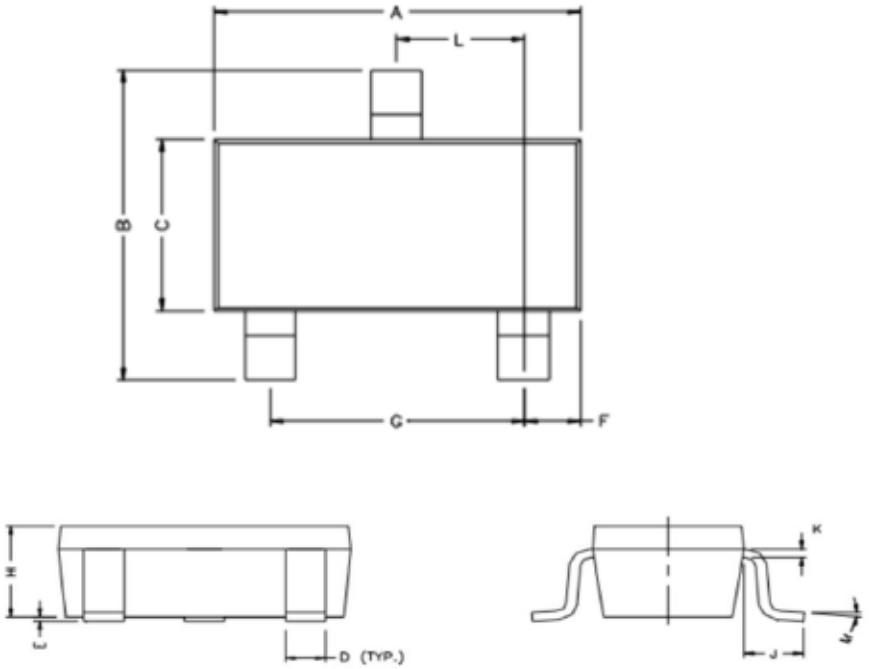
Reverse Diode Characteristics (T_A =25°C unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Forward Current, Continuous	I_{SD}	T_C=25°C	--	--	6.5	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%.

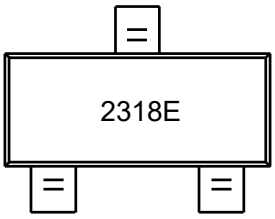
Package Outline Dimensions (Unit: millimeters)

SOT-23



REF.	Millimeter		REF.	Millimete	
	Min.	Max.		Min.	Max.
A	2.80	3.00	G	1.80	2.00
B	2.30	2.50	H	0.90	1.1
C	1.20	1.40	K	0.10	0.20
D	0.30	0.50	J	0.35	0.70
E	0	0.10	L	0.92	0.98
F	0.45	0.55	M	0°	10°

Marking Outline



Part Name: GMN2318E

1. P/N Mark: 2318E

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