

### N-Channel 50-V(D-S) MOSFETS

V(BR)DSS	RDS(on)MAX	ID
50 V	2Ω @ 10V	500mA
	2.2Ω @ 4.5V	

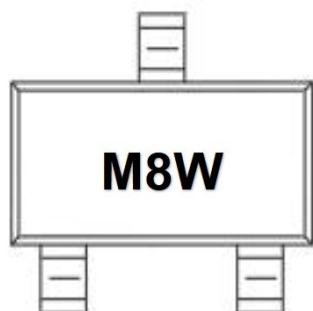
**FEATURE :**

- ※ TrenchFET Power MOSFET
- ※ Low On-Resistance
- ※ Low Input Capacitance
- ※ Fast Switching Speed
- ※ Low Input/Output Leakage
- ※ Lead Free By Design/RoHS Compliant

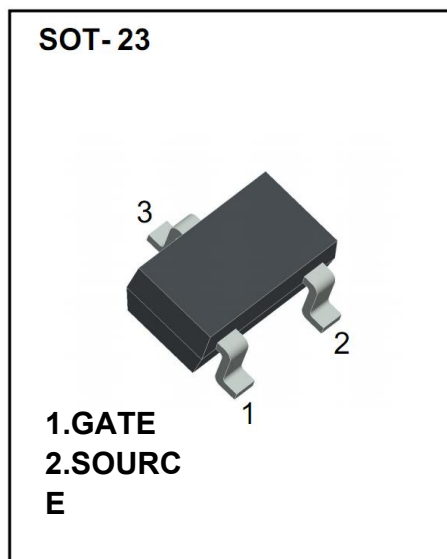
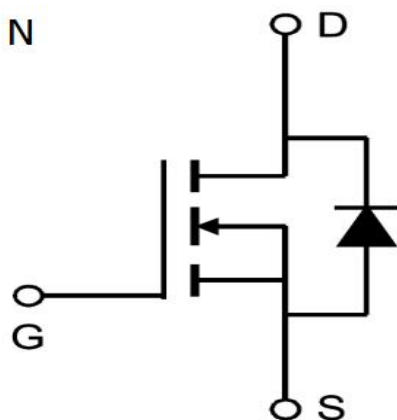
**APPLICATION :**

- ※ Load Switch for Portable Devices
- ※ DC/DC Converter

**MARKING**



**Equivalent Circuit**



**Maximum ratings ( Ta=25°C unless otherwise noted)**

Parameter	Symbol	Value	Unit
Drain-Source Voltage	VDS	50	V
Gate-Source Voltage	VGS	±20	
Continuous Drain Current	ID	500	mA
Pulsed Drain Current	IDM	1.2	A
Continuous Source-Drain Current(Diode Conduction)	IS	200	mA
Power Dissipation	PD	0.6	W
Thermal Resistance from Junction to Ambient (t≤5s)	RθJA	200	°C/W
Operating Junction	TJ	150	°C
Storage Temperature	TSTG	-55~+150	

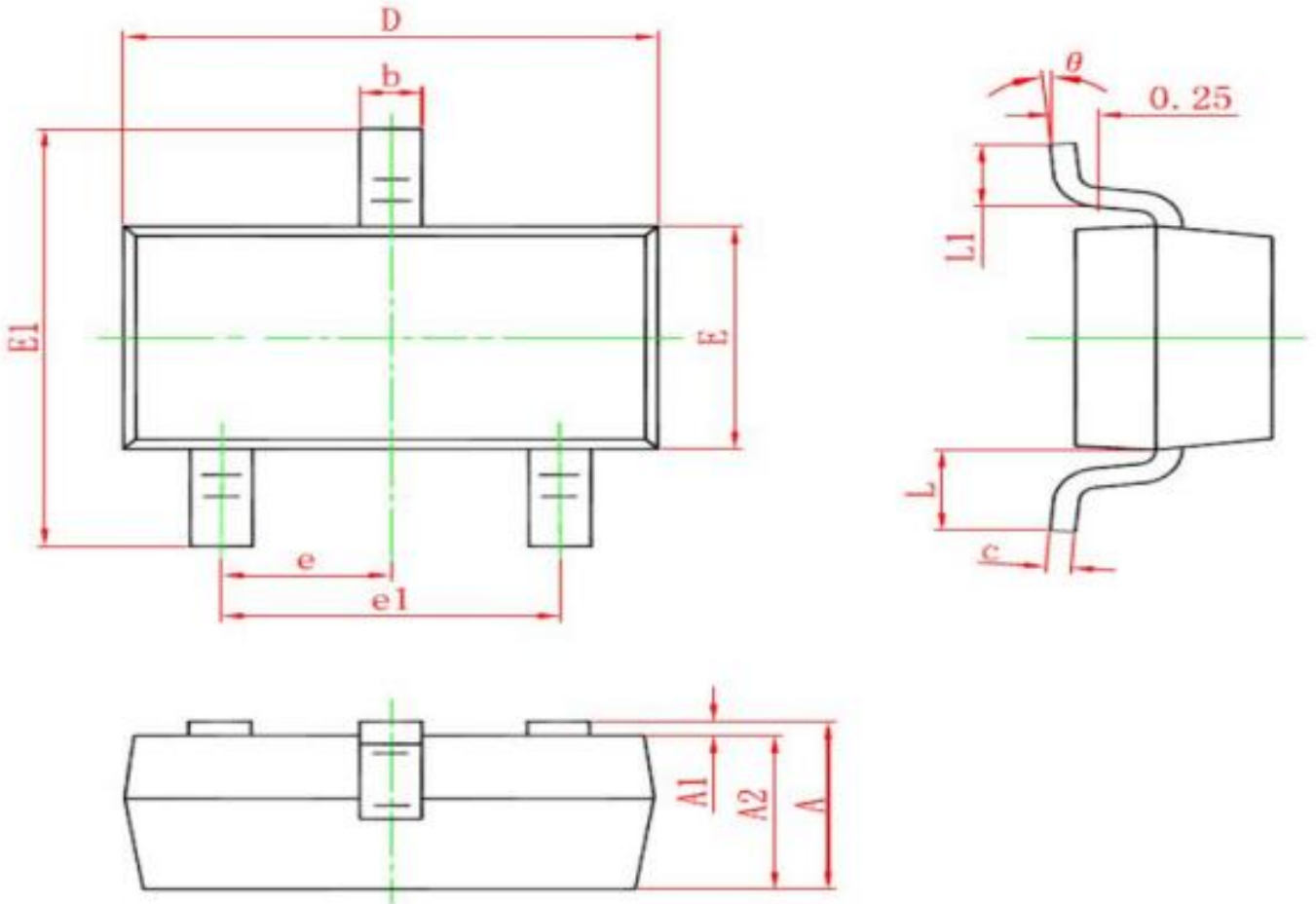
**MOSFET ELECTRICAL CHARACTERISTICS**
**Static Electrical Characteristics (Ta = 25 °C Unless Otherwise Noted)**

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
<b>Static</b>						
Drain-source breakdown voltage	<b>V(BR)DSS</b>	VGS = 0V, ID = 250μA	50			V
Gate-source threshold voltage	<b>VGS(th)</b>	VDS = VGS, ID = 250μA	0.45		1.6	V
Gate-source leakage	<b>IGSS</b>	VDS = 0V, VGS = ±20V			±100	nA
Zero gate voltage drain current	<b>IDSS</b>	VDS = 50V, VGS = 0V			0.5	μA
Drain-source on-state resistancea	<b>RDS(on)</b>	VGS = 10V, ID = 500mA		1.2	2	Ω
		VGS = 4.5V, ID = 200mA		1.3	2.2	Ω
Forward transconductancea	<b>gfs</b>	VDS = 10V, ID = 0.2A	80			mS
Diode forward voltage	<b>VSD</b>	IS=0.5A,VGS=0V		0.85	1.5	V
<b>Dynamic</b>						
Input capacitance	<b>Ciss</b>	VDS = 10V, VGS = 0V, f=1MHz		22		pF
Output capacitance	<b>Coss</b>			6		pF
Reverse transfer capacitanceb	<b>Crss</b>			4		pF
Total gate charge	<b>Qg</b>	VDS = 25V, VGS = 10V, ID = 0.5A		800		nC
Gate-source charge	<b>Qgs</b>			100		nC
Gate-drain charge	<b>Qgd</b>			100		nC
Gate resistance	<b>Rg</b>	f=1MHz		49		Ω
<b>Switchingb</b>						
Turn-on delay time	<b>td(on)</b>	VDD= 25V RL=25Ω, ID = 0.5A, VGEN= 10V,Rg=50Ω		3		ns
Rise time	<b>tr</b>			3.1		ns
Turn-off delay time	<b>td(off)</b>			9.5		ns
Fall time	<b>tf</b>			8.3		ns
<b>Drain-source body diode characteristics</b>						
Continuous Source-Drain Diode Current	<b>IS</b>	Tc=25°C			0.194	A
Pulsed Diode forward Curren	<b>ISM</b>				1.2	A

**Note :**

1. Repetitive Rating : Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t < 5 sec.
3. Pulse Test : Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production testing.

**SOT-23 PACKAGE OUTLINE DIMENSIONS**



Symbol	Dimensions In Millimeters		Dimensions 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	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

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