

SOT-23 Plastic-Encapsulate MOSFETS

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

V(BR)DSS	RDS(on)MAX	ID
30 V	30mΩ@10V	5.8A
	60mΩ@4.5V	
	80mΩ@2.5V	

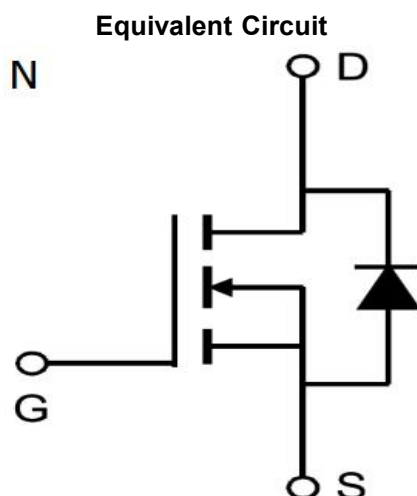
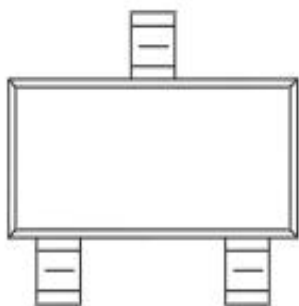
FEATURE

- ※ TrenchFET Power MOSFET
- ※ Exceptional on-resistance and maximum DC current capability
- ※ High dense cell design for extremely low RDS(ON)

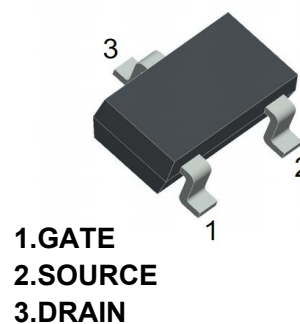
APPLICATION

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

MARKING



SOT-23



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	VDS	30	V
Gate-Source Voltage	VGS	±12	
Continuous Drain Current	ID	5.8	A
Pulsed Diode Current	IDM	30	
Continuous Source-Drain Current(Diode Conduction)	IS	0.72	
Power Dissipation	PD	1.4	W
Thermal Resistance from Junction to Ambient (t≤5s)	RθJA	357	°C/W
Operating Junction	TJ	150	°C
Storage Temperature	TSTG	-55~+150	°C

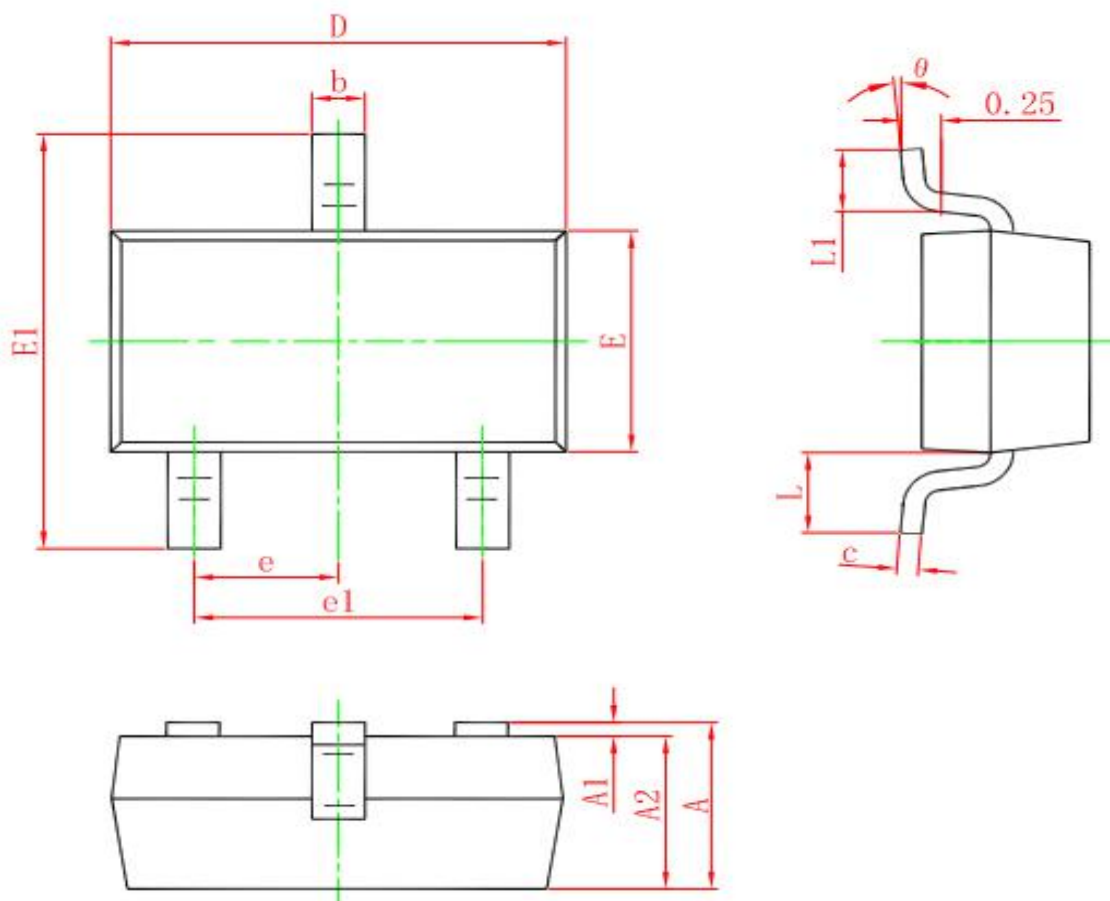
Static Electrical Characteristics (Ta = 25 °C Unless Otherwise Noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Drain-source breakdown voltage	V(BR)DSS	VGS = 0V, ID = 250μA	30			V
Gate-source threshold voltage	VGS(th)	VDS =VGS, ID = 250μA	0.6		1.2	V
Gate-source leakage	IGSS	VDS =0V, VGS = ±12V			±100	nA
Zero gate voltage drain current	IDSS	VDS = 30V, VGS =0V			1	μA
Drain-source on-state resistancea	RDS(on)	VGS = 10V, ID = 3.8A		24	40	mΩ
		VGS = 4.5V, ID = 2.8A		27	60	mΩ
		VGS = 2.5V, ID = 2A		37	80	mΩ
Forward transconductancea	gfs	VDS = 4.5V, ID = 5.8A		33		S
Diode forward voltage	VSD	IS=1A,VGS=0V		0.7	1.3	V
Dynamic						
Input capacitance	Ciss	VDS = 15V,VGS =0V, f=1MHz		630		pF
Output capacitance	Coss			75		pF
Reverse transfer capacitanceb	Crss			50		pF
Total gate charge	Qg	VDS = 15V,VGS = 4.5V, ID =5.8A		6	12	nC
Gate-source charge	Qgs			1.3		nC
Gate-drain charge	Qgd			1.8		nC
Gate resistance	Rg	f=1MHz			4.5	Ω
Switchingb						
Turn-on delay time	td(on)	VDD= 15V RL=8Ω, ID ≈ 1A, VGEN= 4.5V,Rg=6Ω		4		ns
Rise time	tr			3		ns
Turn-off delay time	td(off)			25		ns
Fall time	tf			4		ns
Drain-source body diode characteristics						
Continuous Source-Drain Diode Current	IS	Tc=25℃			2	A
Pulsed Diode forward Curren	ISM				20	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	0.950 TYP.		0.037 TYP.	
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°

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

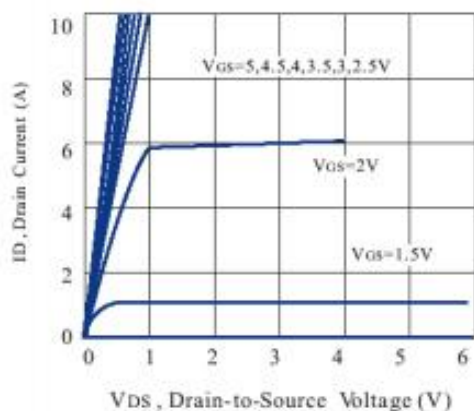


Figure 1. Output Characteristics

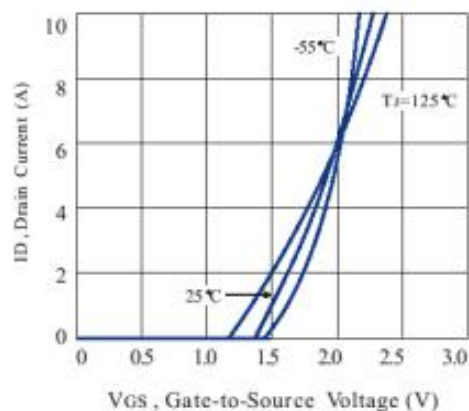


Figure 2. Transfer Characteristics

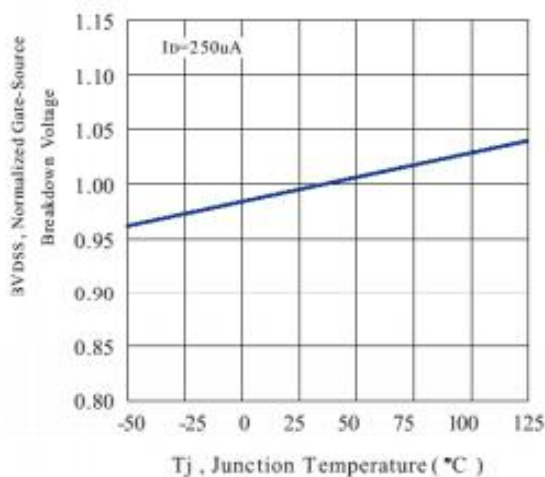


Figure 3. Breakdown Voltage Variation with Temperature

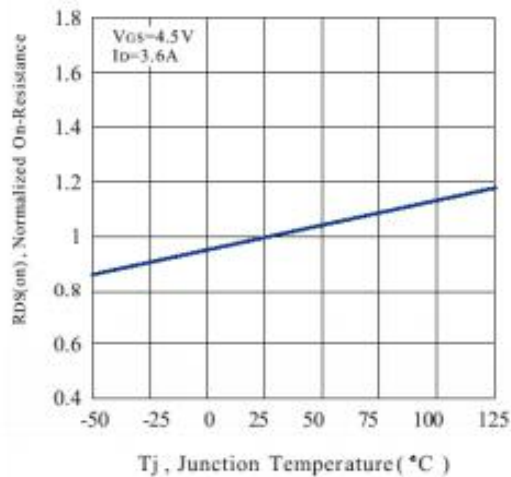


Figure 4. On-Resistance Variation with Temperature

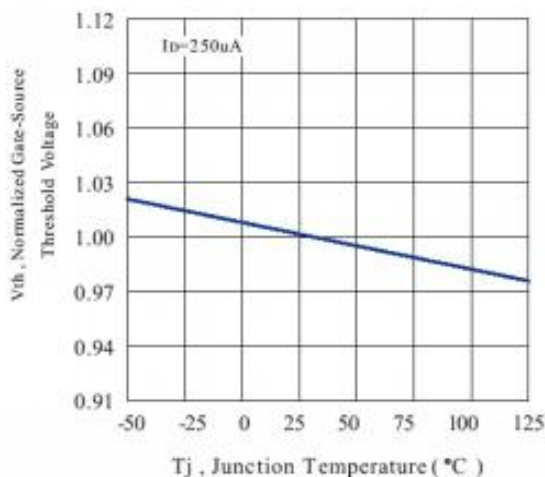


Figure 5. Gate Threshold Variation with Temperature

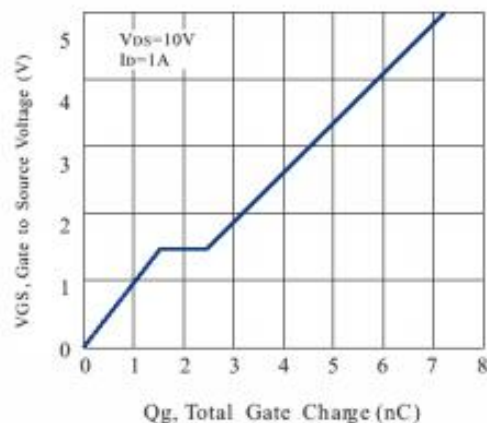


Figure 6. Gate Charge

Flow (wave) soldering (solder dipping)

Product	Peak Temperature	Dipping Time
Pb device	245°C±5°C	5sec±1sec
Pb-Free device	260°C+0/-5°C	5sec±1sec



This integrated circuit can be damaged by ESD. BYSEMI Corporation recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedure can cause damage. ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.