

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

V(BR)DSS	RDS(on)MAX	ID
-30 V	60mΩ@-10V	-4.2A
	80mΩ@-4.5V	

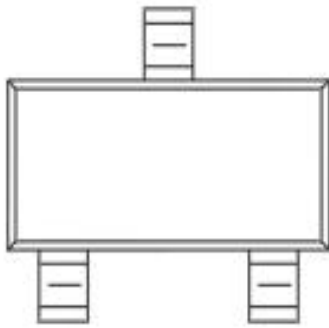
FEATURE

※ TrenchFET Power MOSFET

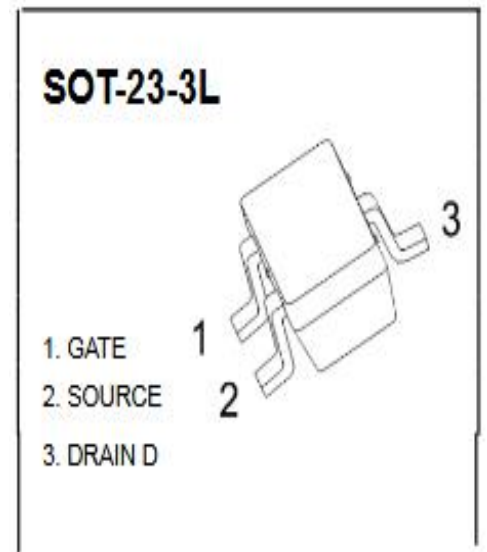
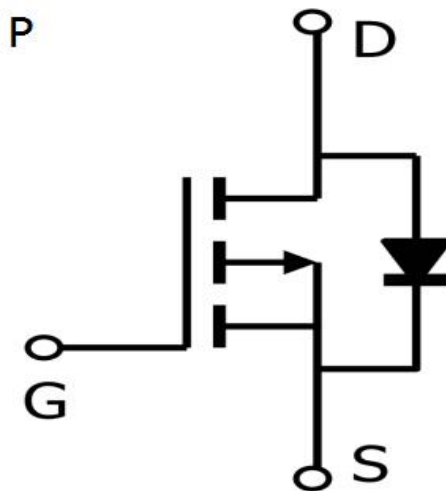
APPLICATION

※ 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	-30	V
Gate-Source Voltage	VGS	±20	
Continuous Drain Current	ID	-4.2	A
Pulsed Diode Current	IDM	-15	
Continuous Source-Drain Current (Diode Conduction)	IS	-0.8	
Power Dissipation	PD	1.4	W
Thermal Resistance from Junction to Ambient (t≤5s)	RθJA	125	°C/W
Operating Junction	TJ	150	°C
Storage Temperature	TSTG	-55~+150	°C

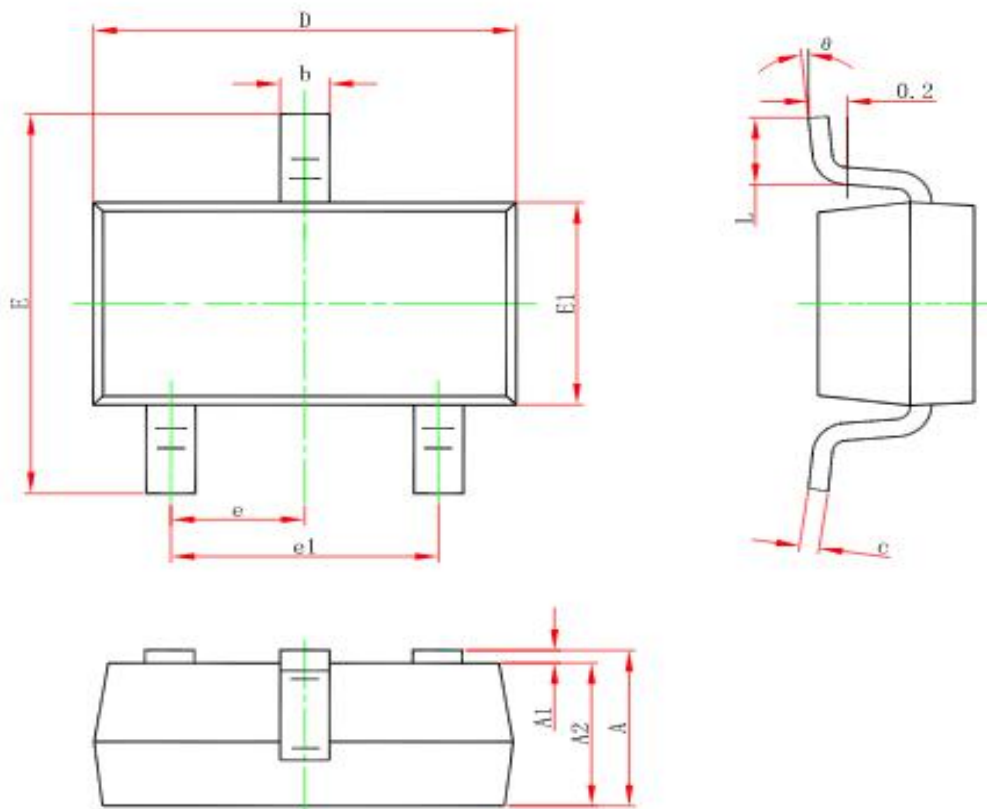
Static Electrical Characteristics (Ta = 25 °C Unless Otherwise Noted)

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	-1		-2	V
Gate-source leakage	IGSS	VDS =0V, VGS = ±20V			±100	nA
Zero gate voltage drain current	IDSS	VDS = -24V, VGS =0V			-1	μA
Drain-source on-state resistancea	RDS(on)	VGS = -10V, ID = -4.2A		53	60	mΩ
		VGS = -4.5V, ID = -3A		63	80	mΩ
Forward transconductancea	gfs	VDS = -4.5V, ID = -4.2A		10		S
Diode forward voltage	VSD	IS=-1A,VGS=0V	-0.5	-0.8	-1.1	V
Dynamic						
Input capacitance	Ciss	VDS = -15V,VGS =0V, f=1MHz		520		pF
Output capacitance	Coss			100		pF
Reverse transfer capacitanceb	Crss			65		pF
Total gate charge	Qg	VDS = -15V,VGS = - 4.5V, ID = - 4.2A		9.4		nC
Gate-source charge	Qgs			2		nC
Gate-drain charge	Qgd			3		nC
Gate resistance	Rg	f=1MHz		7.5		Ω
Switchingb						
Turn-on delay time	td(on)	VDS= -15V RL=3Ω, ID ≈ 1-A, VGEN= -4.2V,Rg=3Ω		705		ns
Rise time	tr			5		ns
Turn-off delay time	td(off)			19		ns
Fall time	tf			7		ns
Drain-source body diode characteristics						
Continuous Source-Drain Diode Current	IS	Tc=25℃			-1.1	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-23-3L PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

Typical Characteristics:

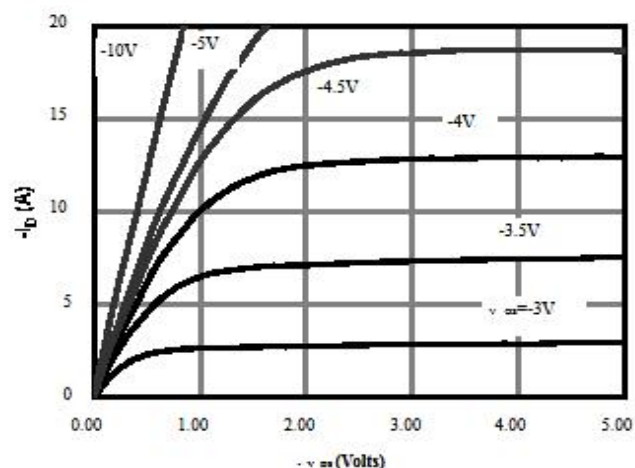


Figure 1: On-Region Characteristics

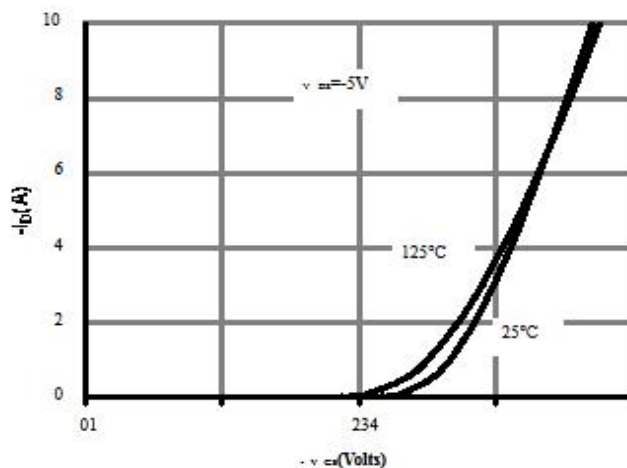


Figure 2: Transfer Characteristics

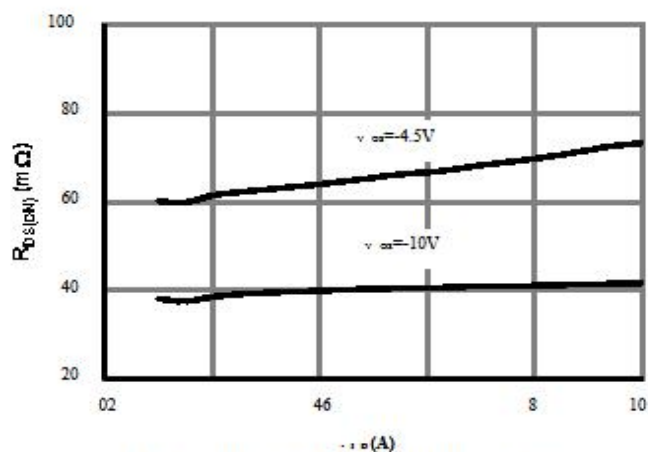


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

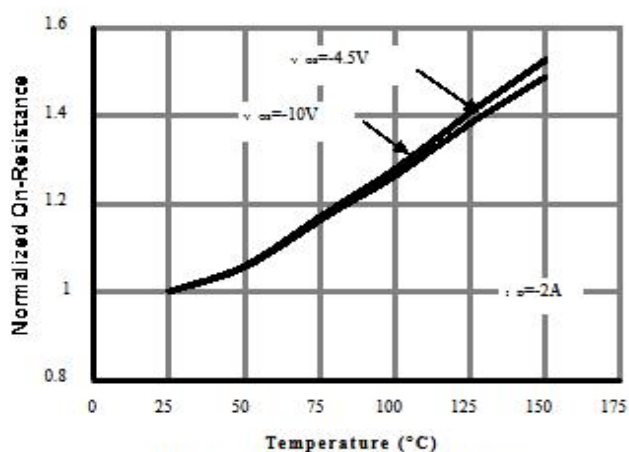


Figure 4: On-Resistance vs. Junction Temperature

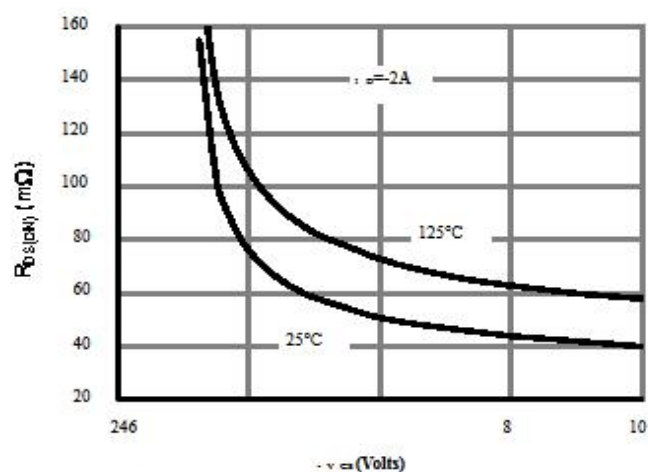


Figure 5: On-Resistance vs. Gate-Source Voltage

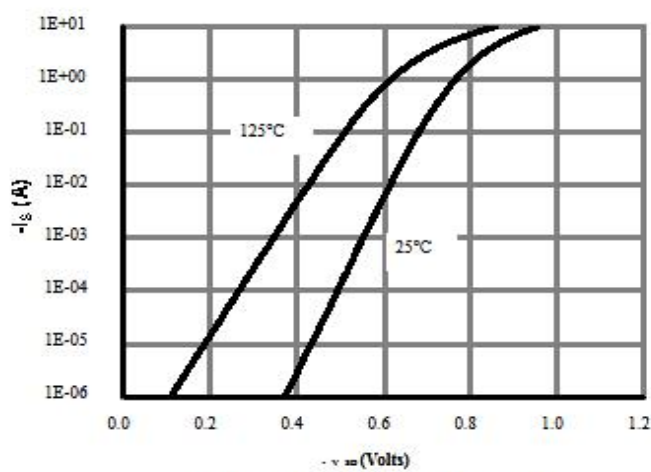


Figure 6: Body-Diode Characteristics

Typical Characteristics:

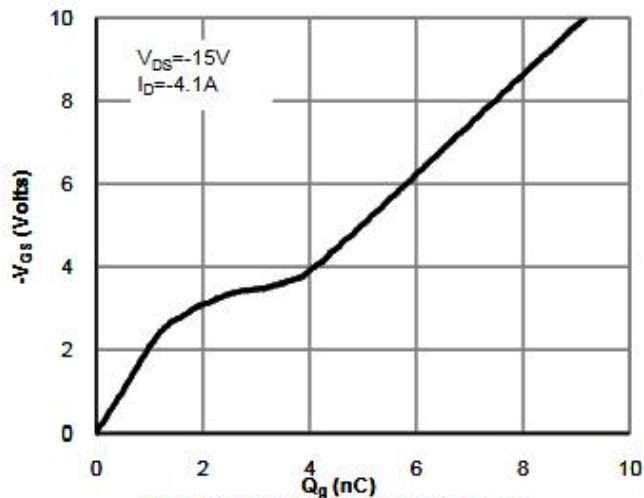


Figure 7: Gate-Charge Characteristics

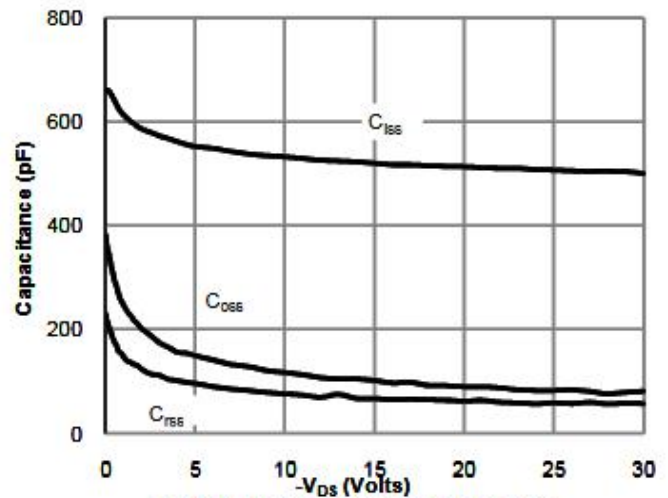


Figure 8: Capacitance Characteristics

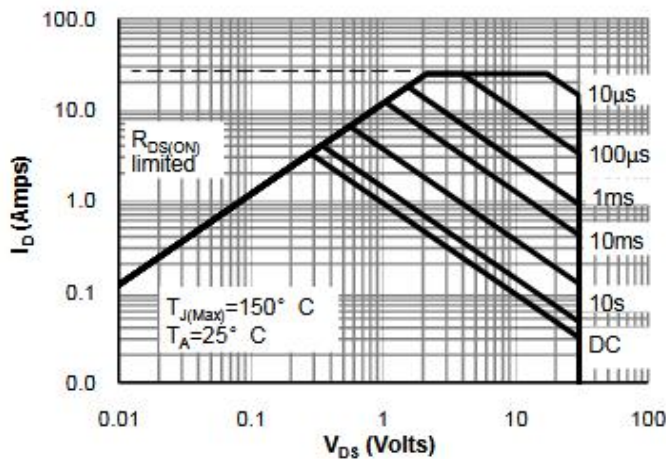


Figure 9: Maximum Forward Biased Safe Operating Area (Note F)

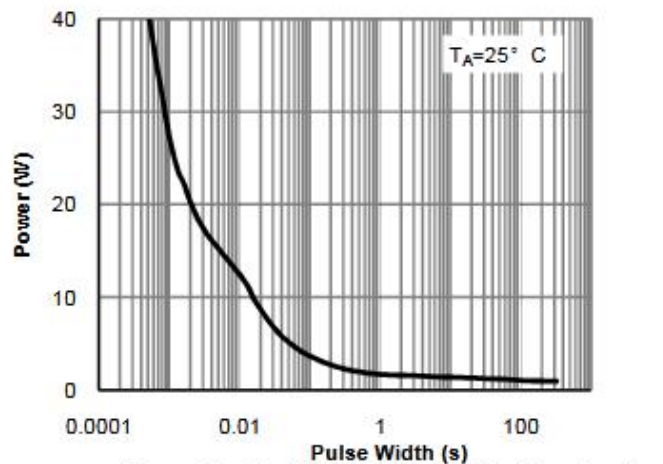


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note F)

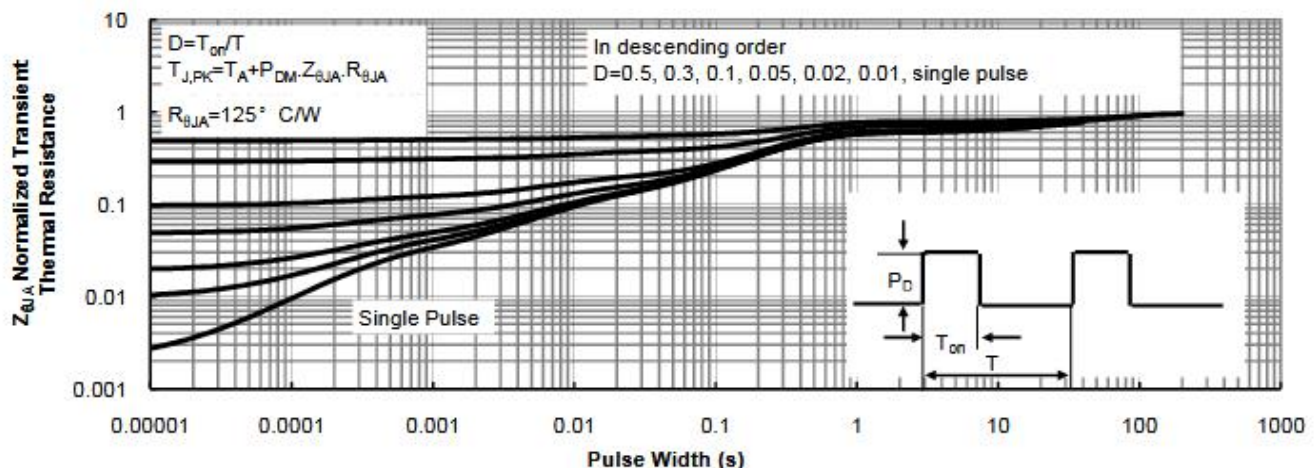


Figure 11: Normalized Maximum Transient Thermal Impedance (Note F)

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.