

**SOT-23 Plastic-Encapsulate MOSFET****SOT-23****Features**

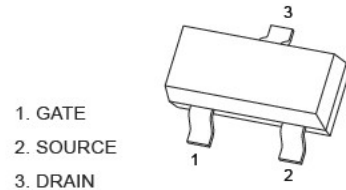
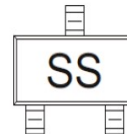
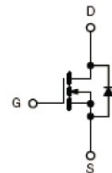
- TrenchFET Power MOSFET
- Load Switch for Portable Devices.
- DC/DC Converter.

Mechanical Data

- SOT-23 Small Outline Plastic Package.
- Epoxy UL: 94V-0.
- Mounting Position: Any.

MOSFET(N-Channel)

V(BR)DSS	RDS(ON)MAX	ID
50V	3.5Ω@10V	0.22A
	6Ω@4.5V	

**MARKING****Equivalent Circuit****Maximum Ratings & Thermal Characteristics** (Ratings at 25°C ambient temperature unless otherwise specified.)

Parameters	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	50	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current	I _D	0.22	A
Power Dissipation	P _D	350	mW
Junction Temperature	T _j	150	°C
Storage Temperature	T _{stg}	-50-+150	°C
Thermal Resistance From Junction to Ambient	R _{θJA}	357	°C/W

Electrical Characteristics (Ratings at 25°C ambient temperature unless otherwise specified).

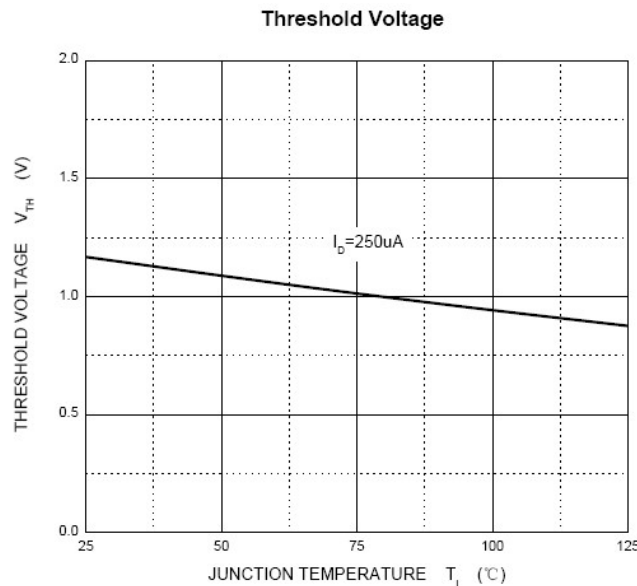
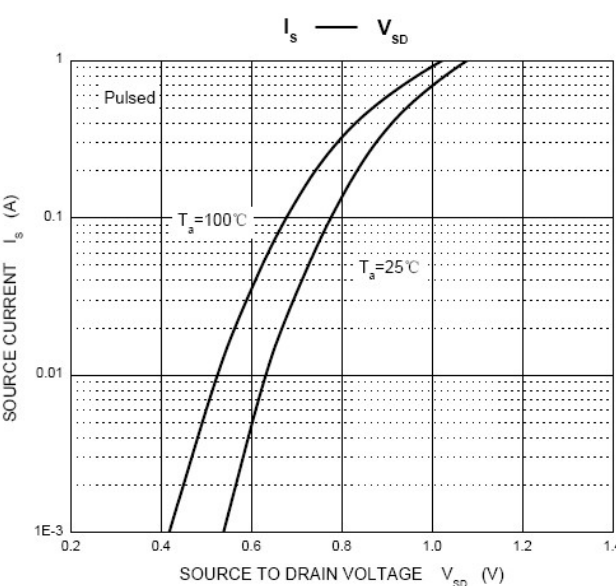
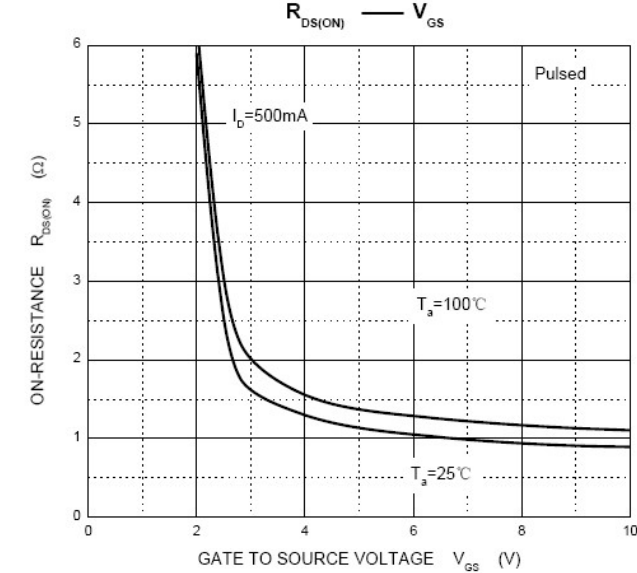
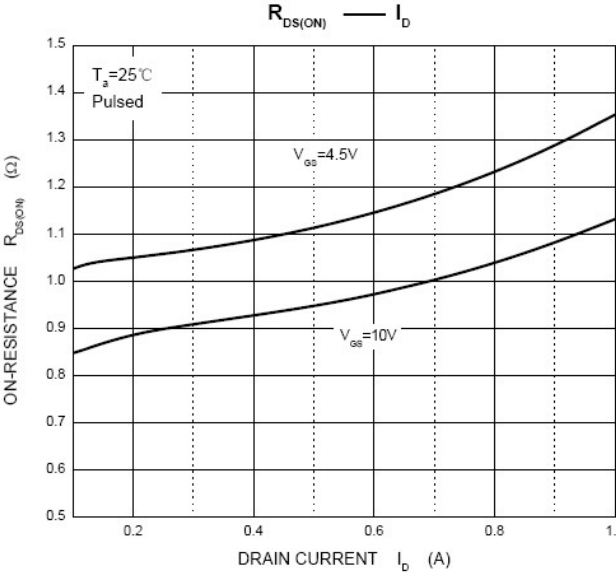
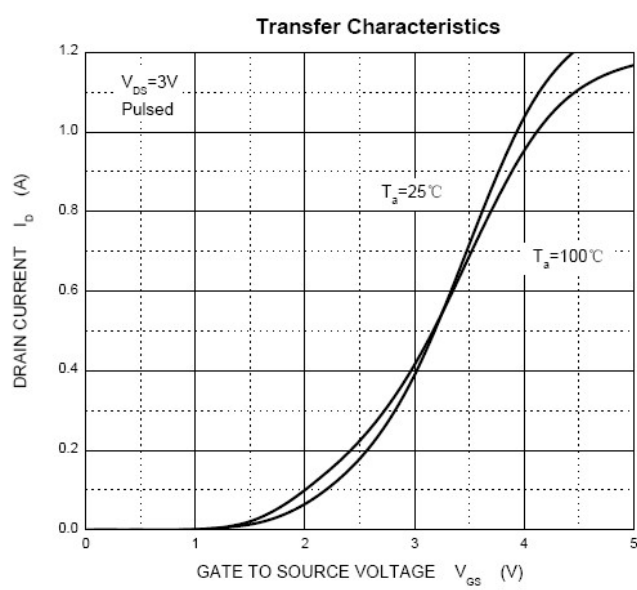
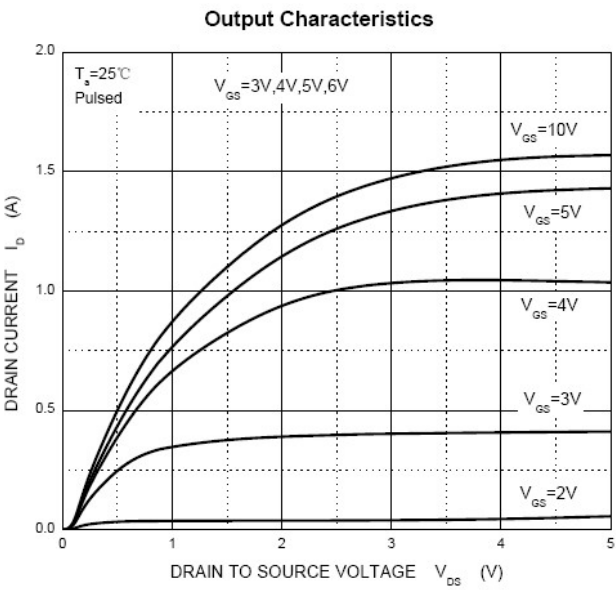
Parameter	Symbols	Test Condition	Limits			Unit
			Min	Typ	Max	
Static						
Drain-Source Breakdown Voltage	V(BR)DSS	VGS=0V, ID=250uA	50			V
Gate-Threshold voltage(note1)	V GS (th)	VDS=VGS, ID=1mA	0.8		1.5	V
Gate-body Leakage	IGSS	VDS=0V, VGS=±20V			±100	nA
Zero Gate Voltage Drain current	IDSS	VDS=50V, VGS=0V			0.5	uA
		VDS=30V, VGS=0V			0.1	
Drain-Source On-Resistance (note1)	RDS(ON)	VGS=10V, ID=0.22A			3.5	Ω
		VGS=4.5V, IC=0.22A			6	
Forward trans conductance (note1)	gfs	VDS=10V, ID=0.22A	0.12			S
Diode forward voltage(note1)	VSD	IS=0.44A, VGS=0V			1.4	V
Dynamic(note2)						
Input capacitance	Ciss	VDS=25V, VGS=0V,f=1MHz		27		pF
Output capacitance	Coss			13		
Reverse Transfer capacitance	Crss			6		
Switching(note1,2)						
Turn-on Time	td(on)	VDD=30V, RGEN=6Ω, VDS=10V, ID≈0.29A,			5	ns
Rise time	tr				18	
Turn-off Time	td(off)				36	
Fall time	tf				14	

Notes: a. Pulse Test: Pulse Width ≤300μs, Duty Cycle≤2%.

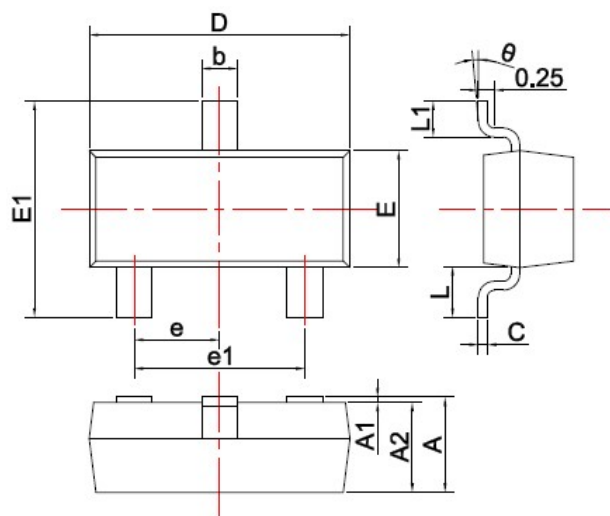
b. These parameters have no way to verify.

Typical characteristics

BSS138



SOT-23 PACKAGE OUTLINE Plastic surface mounted package

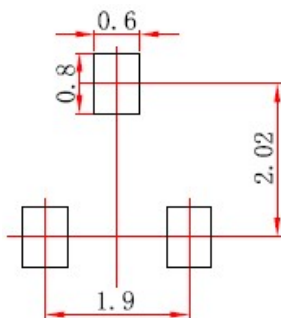


SYMBOL	DIMENSIONS	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°

Unit: mm

Precautions: PCB Design

Recommended land dimensions for SOT-23 diode. Electrode patterns for PCBs



- Note:
- 1. Controlling dimension: In millimeters.
 - 2. General tolerance: ± 0.05 mm.
 - 3. The pad layout is for reference purposes only.