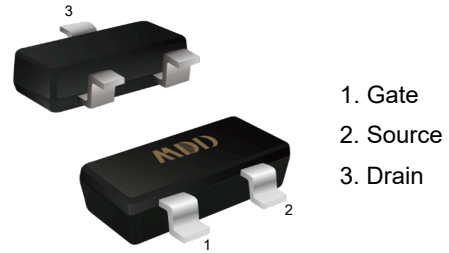


$V_{(BR)DSS}$	$R_{DS(on)MAX}$	$I_D$
50V	2.5Ω@10V	340mA
	3.0Ω@4.5V	

### SOT-23



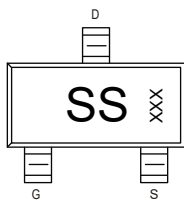
### Features

- Trench Power MV MOSFET technology
- Voltage controlled small signal switch
- Low input Capacitance
- Fast Switching Speed
- Low Input / Output Leakage

### Application

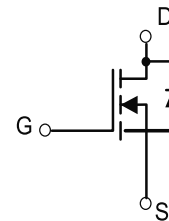
- Battery operated systems
- Solid-state relays
- Direct logic-level interface : TTL/CMOS

### Marking



XXX:Date Code

### Equivalent Circuit



### Absolute Maximum Ratings ( $T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	50	V
Gate-Source Voltage	$V_{GS}$	±20	V
Continuous Drain Current	$I_D$	340	mA
Pulsed Drain Current (Note 1)	$I_{DM}$	1.5	A
Power Dissipation(Note 2)	$P_D$	350	mW
Thermal Resistance from Junction to Ambient(Note 2)	$R_{\theta JA}$	357	°C/W
Junction Temperature and Storage Temperature	$T_J, T_{stg}$	-50 ~150	°C

Notes: Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

Ta = 25°C unless otherwise specified

Symbol	Parameter	Condition	Min	Typ	Max	Unit
V <sub>(BR)DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	50	--	--	V
I <sub>DSS</sub>	Drain-Source Leakage Current	V <sub>DS</sub> =50V, V <sub>GS</sub> =0V	--	--	1	uA
I <sub>GSS</sub>	Gate-Source Leakage Current	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	--	--	±100	nA
V <sub>GS(TH)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	0.8	1.2	1.6	V
R <sub>DS(ON)</sub>	Drain-Source On-State Resistance(Note 3)	V <sub>GS</sub> =10V, I <sub>D</sub> =300mA	--	1.1	2.5	Ω
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =200mA	--	2.0	3.0	Ω

### Dynamic Electrical Characteristics

Symbol	Parameter	Condition	Min	Typ	Max	Unit
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =25V V <sub>GS</sub> =0V f=1MHz	--	28.5	--	pF
C <sub>oss</sub>	Output Capacitance		--	2.7	--	pF
C <sub>rss</sub>	Reverse Transfer Capacitance		--	1.78	--	pF
Q <sub>g</sub>	Total Gate Charge	V <sub>DS</sub> =25V	--	1.7	--	nC
Q <sub>gs</sub>	Gate Source Charge	V <sub>GS</sub> =10V	--	0.4	--	nC
Q <sub>gd</sub>	Gate Drain Charge	I <sub>D</sub> =0.3A	--	0.24	--	nC

### Switching Characteristics

Symbol	Parameter	Condition	Min	Typ	Max	Unit
t <sub>d(on)</sub>	Turn on Delay Time	V <sub>DS</sub> =25V V <sub>GS</sub> =10V I <sub>D</sub> =300mA R <sub>G</sub> =6Ω	--	2.6	--	ns
t <sub>r</sub>	Turn on Rise Time		--	18.8	--	ns
t <sub>d(off)</sub>	Turn Off Delay Time		--	9.7	--	ns
t <sub>f</sub>	Turn Off Fall Time		--	47	--	ns

### Source Drain Diode Characteristics

Symbol	Parameter	Condition	Min	Typ	Max	Unit
I <sub>SD</sub>	Source drain current(Body Diode)	T <sub>A</sub> =25°C	--	--	340	mA
V <sub>SD</sub>	Drain-Source Diode Forward Voltage	I <sub>S</sub> =300mA, V <sub>GS</sub> =0V	--	--	1.2	V

- Notes:**
- 1.Pulse width limited by maximum allowable junction temperature
  - 2.The value of P<sub>D</sub>&R<sub>θJA</sub> is measured with the device mounted on 1 in<sup>2</sup> FR-4 board with 2oz.Copper, double sided, in a still air environmentwith Ta=25°C.
  - 3.Pulse test ; Pulse width≤300us, duty cycle≤2%

### ■ Typical Performance Characteristics

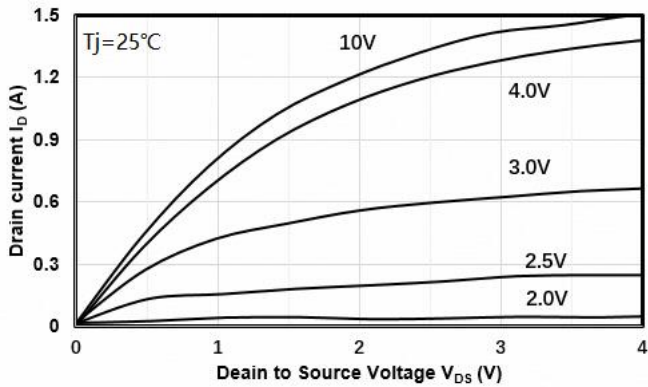


Figure1. Output Characteristics

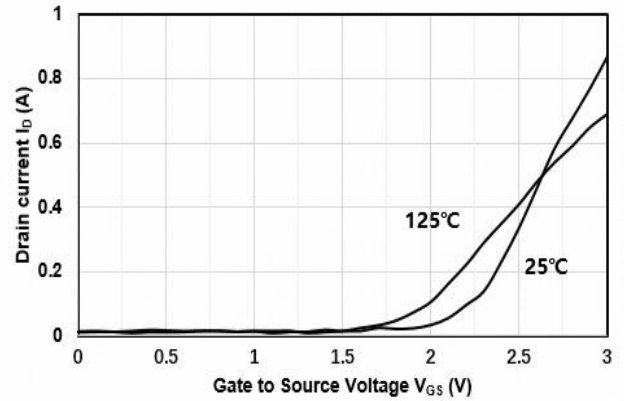


Figure2. Transfer Characteristics

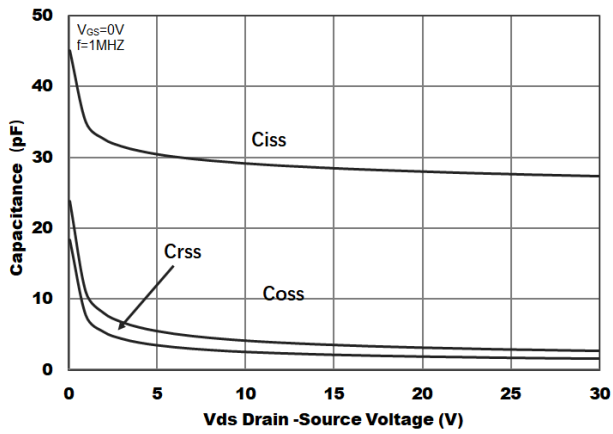


Figure3. Capacitance Characteristics

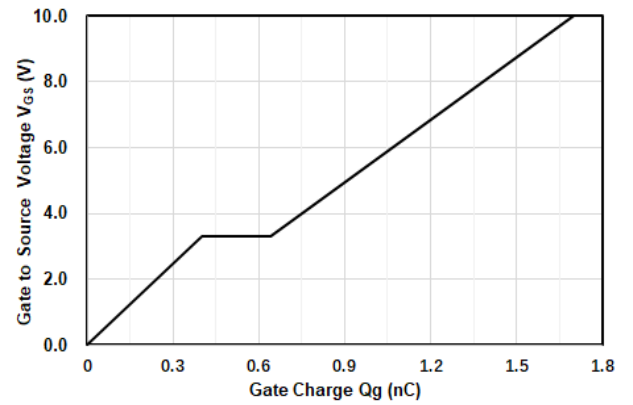


Figure4. Gate Charge

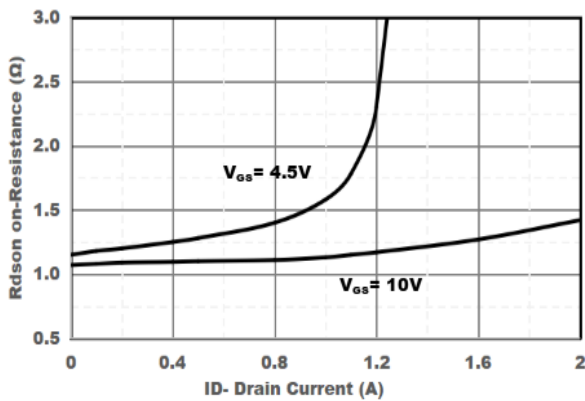


Figure5. Drain-Source on Resistance

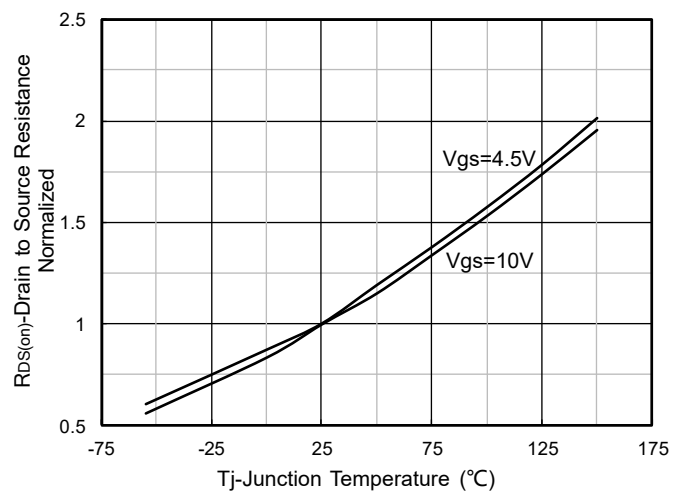


Figure6. Drain-Source on Resistance

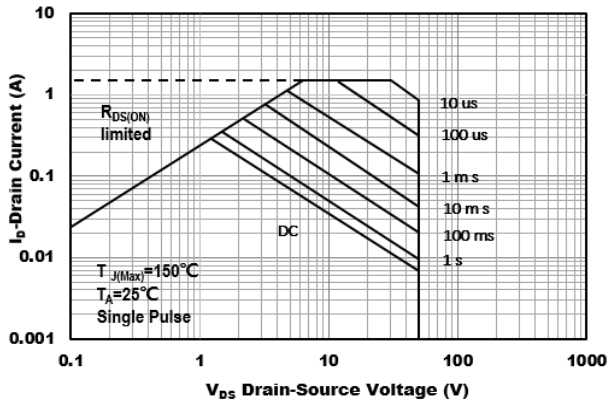


Figure 7. Safe Operation Area

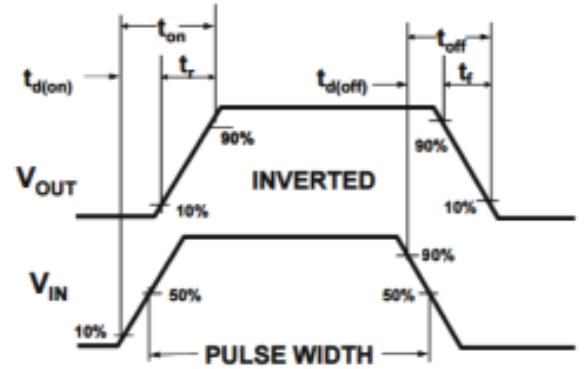


Figure 8. Switching wave

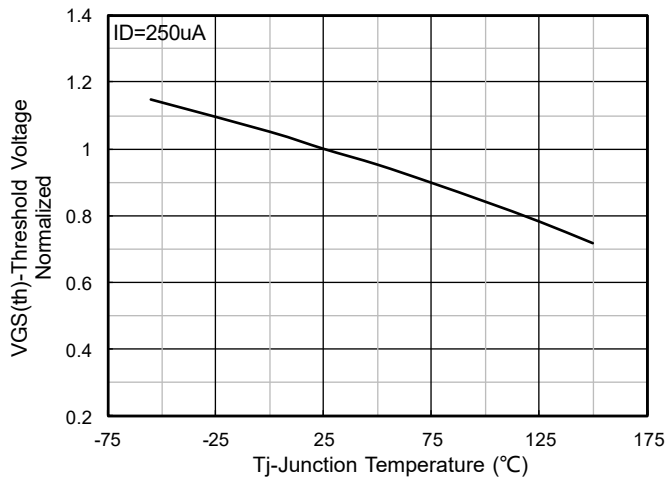


Figure 9. Normalized Threshold voltage

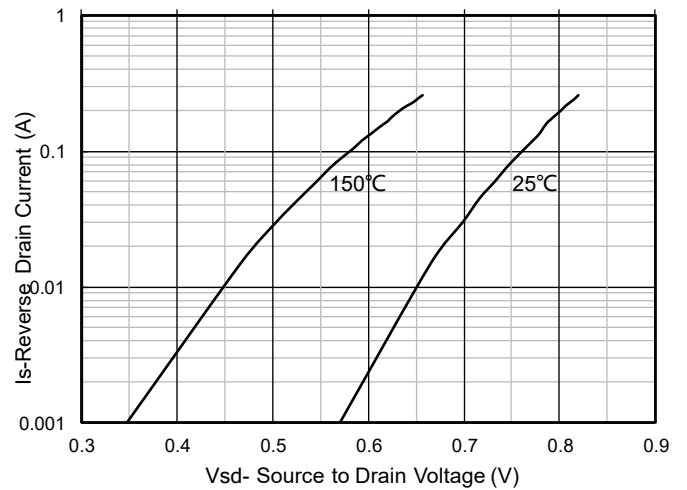
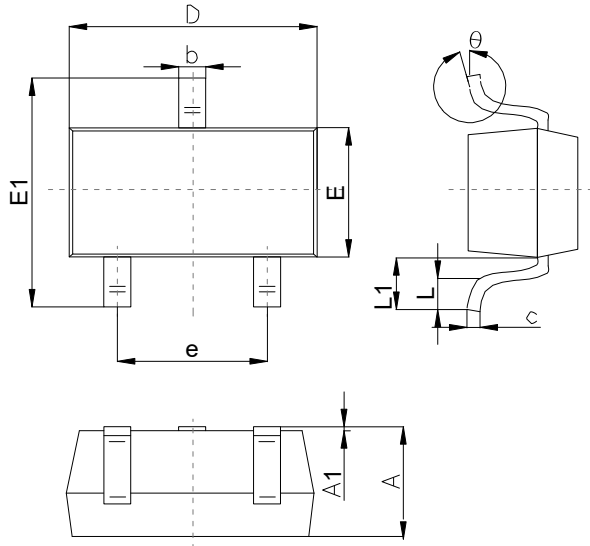


Figure 10. Forward characteristics of reverse diode

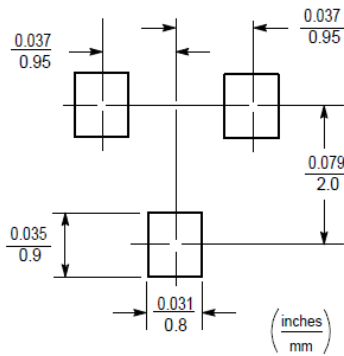
### Outline Drawing

#### SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters		
	Min	Typ	Max
A	0.65		1.40
A1	0.00		0.20
b	0.30		0.55
c	0.08		0.20
D	2.70		3.10
E	1.15		1.65
E1	2.10		2.80
e	1.70		2.10
L	0.15		0.50
L1	0.35		0.70
θ	0°		12°

### Suggested Pad Layout



#### Note:

1. Controlling dimension: in/millimeters.
2. General tolerance:  $\pm 0.05$ mm.
3. The pad layout is for reference purposes only.