

### FEATURES

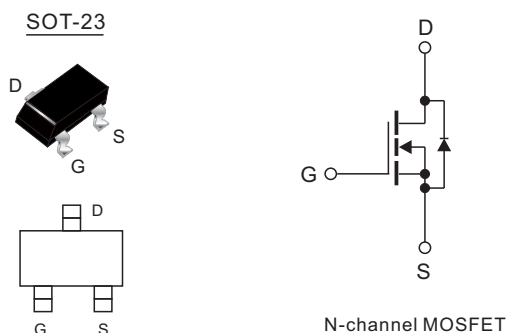
- RDS(ON)<45mΩ@VGS=10V
- RDS(ON)<60mΩ@VGS=4.5V
- Trench Power MV MOSFET technology
- High density cell design for Low RDS(ON)



Product Summary		
V <sub>DS</sub>	R <sub>DS(on)</sub> (mΩ) Typ	I <sub>D</sub> (A)
40V	30@10V	5
	40@4.5V	3

### MECHANICAL DATA

- Case:SOT-23(TO-236)
- Terminals:Plated solderable per MIL-STD-750,method 2026
- Mounting Position: Any



### Absolute Maximum Ratings (T<sub>A</sub>=25°C unless otherwise noted)

Parameters	Symbol	Value	Unit
Drain-Source voltage	V <sub>DS</sub>	40	V
Gate-Source Voltage	V <sub>GS</sub>	±20	V
Continuous Drain Current	I <sub>D</sub>	T <sub>A</sub> =25°C	5
		T <sub>A</sub> =70°C	4
Pulsed Drain Current <sup>1)</sup>	I <sub>DM</sub>	20	A
Maximum Power Dissipation @T <sub>A</sub> =25°C	P <sub>o</sub>	1.2	W
Junction and Storage Temperature Range	T <sub>J</sub> ,T <sub>STG</sub>	-55 to +150	°C

### Thermal Resistance Ratings

Parameters	Symbol	Typ	Max	Unit
Junction to Ambient, Steady State <sup>2)</sup>	R <sub>θJA</sub>	-	105	°C/W

### Electrical Characteristics (T<sub>J</sub>=25°C unless otherwise noted)

Parameters	Symbol	Conditions	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> =250μA	40	-	-	V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =40V, V <sub>GS</sub> =0V, T <sub>C</sub> =25°C	-	-	1	μA
Gate-Source Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> = ±20V, V <sub>DS</sub> =0V	-	-	±100	nA
Gate-Source Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> =250μA	1.0	1.5	2.5	V
Drain-Source On-State Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> =5A	-	30	45	mΩ
		V <sub>GS</sub> = 4.5V, I <sub>D</sub> =3A	-	40	60	
Dynamic						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =20V, V <sub>GS</sub> =0V, f=1MHz	-	480	-	pF
Output Capacitance	C <sub>oss</sub>		-	92	-	
Reverse Transfer Capacitance	C <sub>rss</sub>		-	68	-	
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =20V, V <sub>GS</sub> =10V, I <sub>D</sub> =3.5A	-	5.2	-	nC
Gate-Source Charge	Q <sub>GS</sub>		-	0.9	-	
Gate-Drain Charge	Q <sub>GD</sub>		-	1.3	-	
Turn-on Delay Time	t <sub>d(on)</sub>	V <sub>GS</sub> =10V, V <sub>DD</sub> =20V, R <sub>L</sub> =1Ω, R <sub>GEN</sub> =3Ω	-	13	-	ns
Turn-On Rise Time	t <sub>r</sub>		-	52	-	
Turn-off Delay Time	t <sub>d(off)</sub>		-	17	-	
Turn-Off Fall Time	t <sub>f</sub>		-	10	-	
Drain-Source Body Diode Characteristics						
Maximum Body-Diode Continuous Current	I <sub>S</sub>		-	-	5.0	A
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =5A, V <sub>GS</sub> =0V	-	-	1.2	V

Notes: 1. Pulse Test: Pulse Width ≤ 300μs, Duty cycle ≤ 2%.  
 2. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

### Typical Characteristics

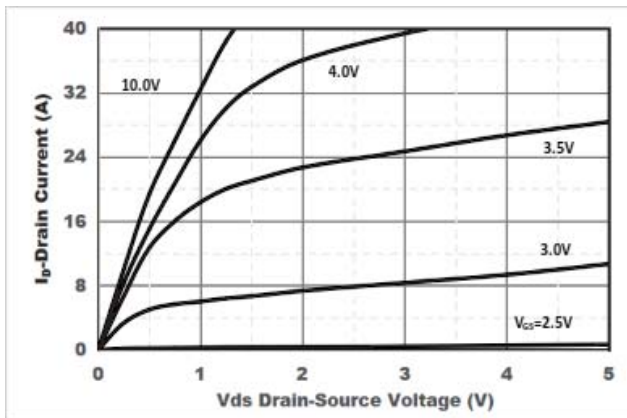


Figure1. Output Characteristics

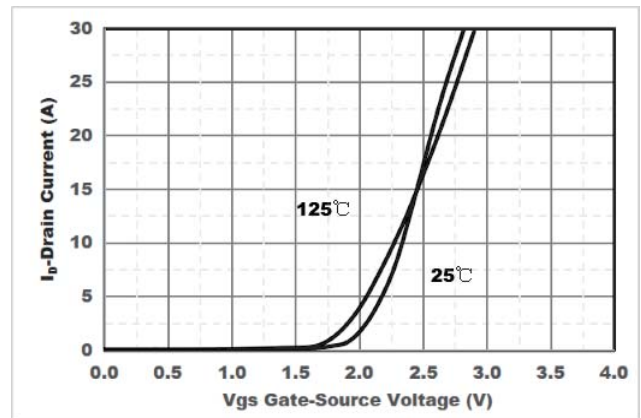


Figure2. Transfer Characteristics

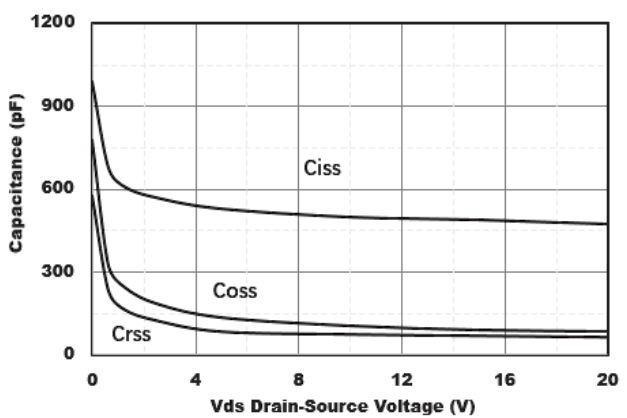


Figure3. Capacitance Characteristics

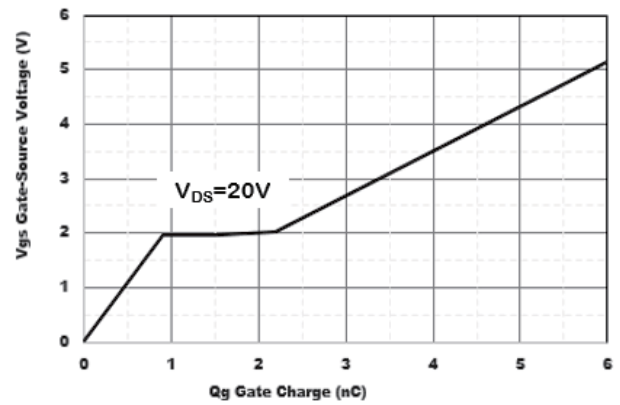


Figure4. Gate Charge

### Typical Characteristics

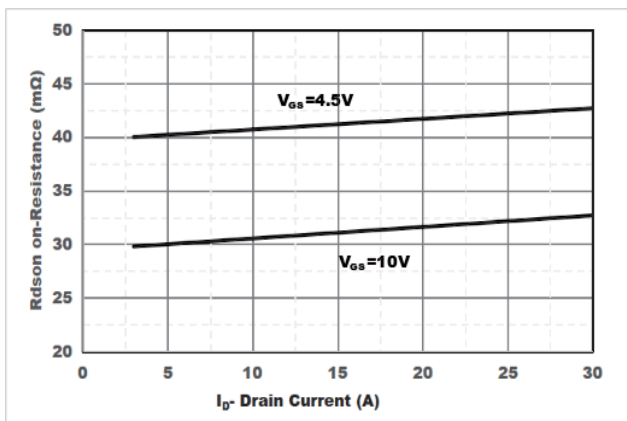


Figure5. Drain -Source on Resistance

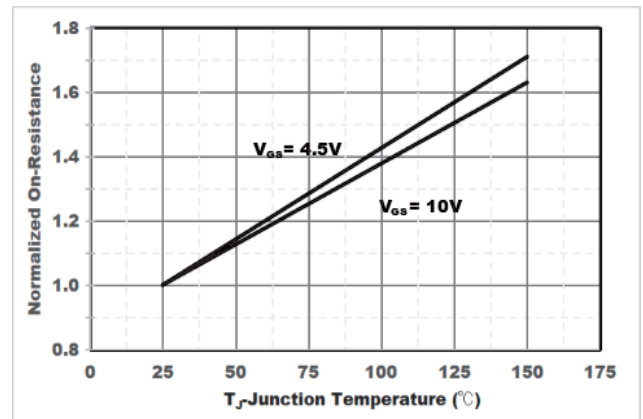


Figure6. Drain -Source on Resistance

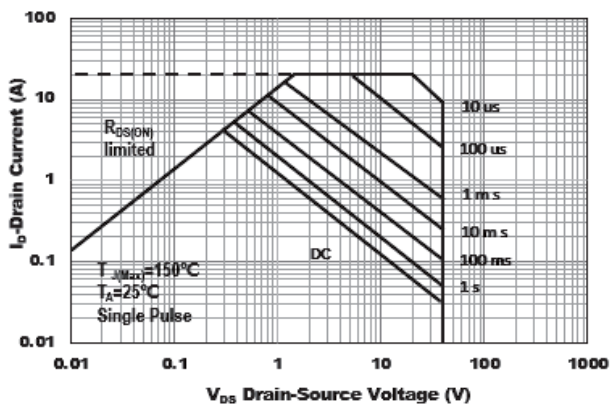


Figure7. Safe Operation Area

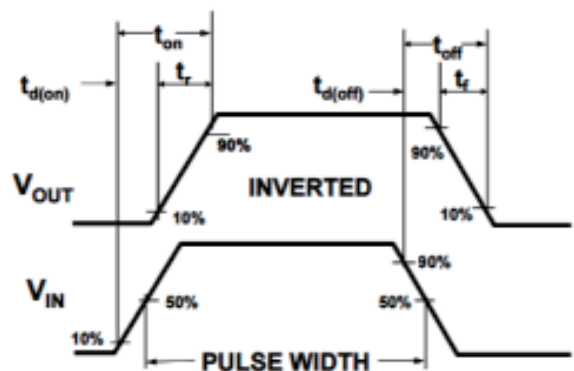
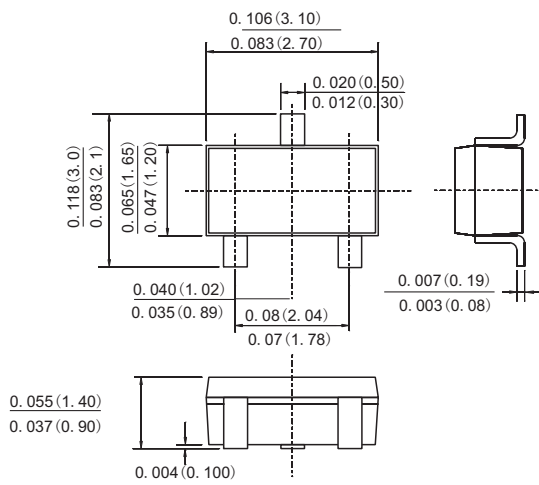


Figure8. Switching wave

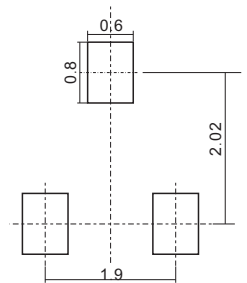
### PACKAGE OUTLINE DIMENSIONS

#### SOT-23



Dimensions in inches and (millimeters)

#### Suggested Pad Layout



Dimensions in millimeters

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