

### FEATURES

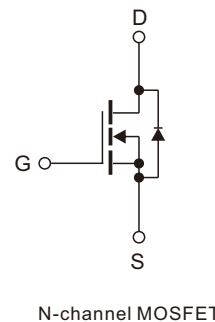
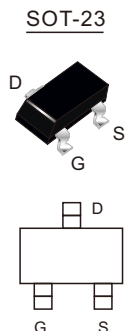
- $R_{DS(on)} < 80m\Omega @ V_{GS}=2.5V$
- $R_{DS(on)} < 52m\Omega @ V_{GS}=4.5V$
- Trench Power LV MOSFET technology



Product Summary			
$V_{DS}$	$R_{DS(on)}$ (m $\Omega$ ) Typ	$I_D$ (A)	$Q_g$ (Typ)
20V	55 @ 2.5V	3.0	2.9nc
	40 @ 4.5V		

### MECHANICAL DATA

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



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

Parameters		Symbol	Value	Unit
Drain-Source voltage		$V_{DS}$	20	V
Gate-Source Voltage		$V_{GS}$	$\pm 10$	V
Continuous Drain Current	$T_A=25^{\circ}C$ @Steady State	$I_D$	3.0	A
	$T_A=70^{\circ}C$ @Steady State		2.4	
Maximum Power Dissipation @ $T_A=25^{\circ}C$		$P_D$	0.7	W
Junction and Storage Temperature Range		$T_J, T_{STG}$	-55 to +150	$^{\circ}C$

### Thermal Resistance Ratings

Parameters	Symbol	Typ	Max	Unit
Junction to Ambient, Steady State <sup>2)</sup>	$R_{\theta JA}$	-	178	$^{\circ}C/W$

2. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

### 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	20	-	-	V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =20V, 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> = ±10V, 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	0.55	0.75	1.1	V
Drain-Source On-State Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> =4.5V, I <sub>D</sub> =3.0A	-	40	52	mΩ
		V <sub>GS</sub> =2.5V, I <sub>D</sub> =2.0A	-	55	80	
Dynamic						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =0V, f=1MHz	-	280	-	pF
Output Capacitance	C <sub>oss</sub>		-	46	-	
Reverse Transfer Capacitance	C <sub>rss</sub>		-	29	-	
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =4.5V, I <sub>D</sub> =3.0A	-	2.9	-	nC
Gate-Source Charge	Q <sub>gs</sub>		-	0.4	-	
Gate-Drain Charge	Q <sub>gd</sub>		-	0.6	-	
Turn-on Delay Time	t <sub>D(on)</sub>	V <sub>GS</sub> =4.5V, V <sub>DD</sub> =10V, R <sub>L</sub> =1.5Ω, R <sub>GEN</sub> =3Ω	-	13	-	ns
Turn-On Rise Time	t <sub>r</sub>		-	54	-	
Turn-off Delay Time	t <sub>D(off)</sub>		-	18	-	
Turn-Off Fall Time	t <sub>f</sub>		-	11	-	
Drain-Source Body-Diode Characteristics						
Maximum Body-Diode Continuous Current	I <sub>S</sub>		-	-	3.0	A
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =3.0A, V <sub>GS</sub> =0V	-	-	1.2	V

### Typical Characteristics Diagrams

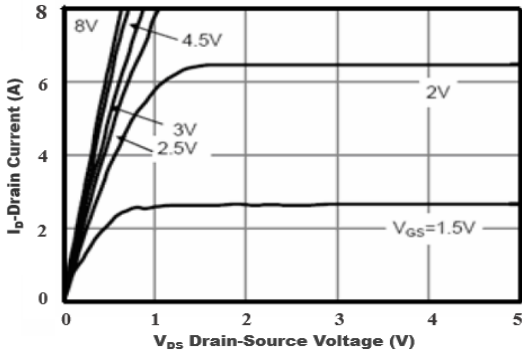


Figure1. Output Characteristics

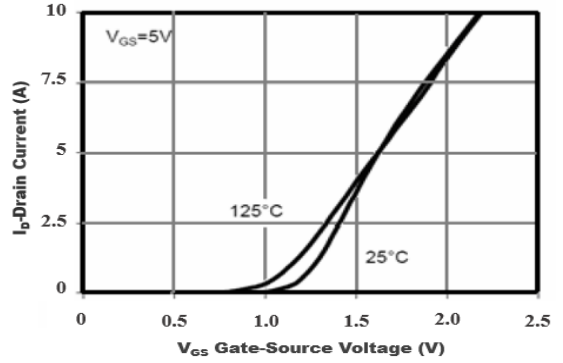


Figure2. Transfer Characteristics

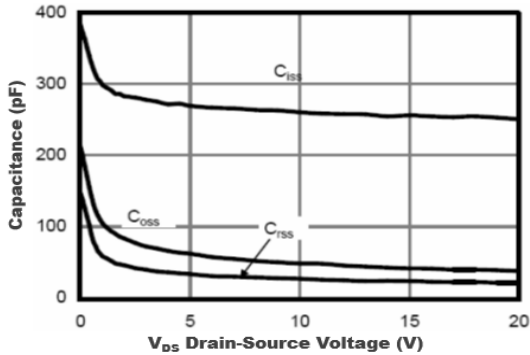


Figure3. Capacitance Characteristics

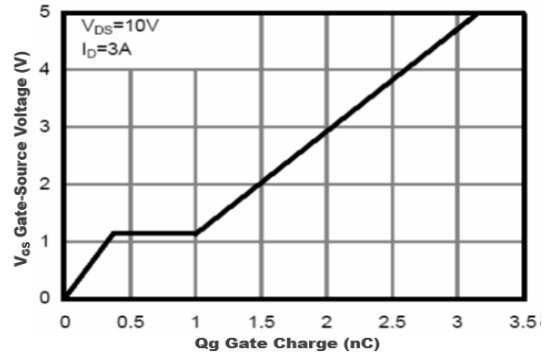


Figure4. Gate Charge

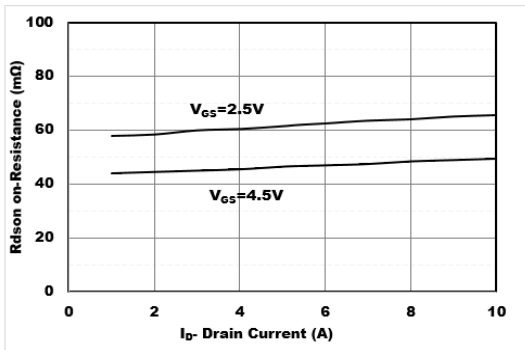


Figure5. Drain-Source on Resistance

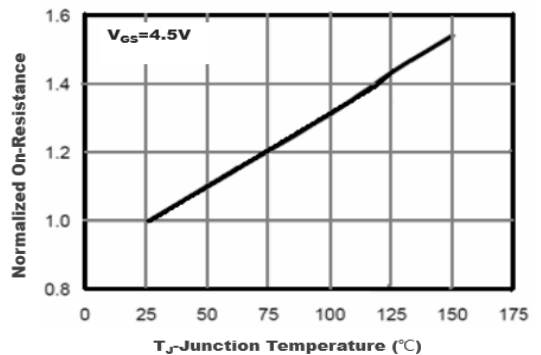


Figure6. Drain-Source on Resistance

### Typical Characteristics Diagrams

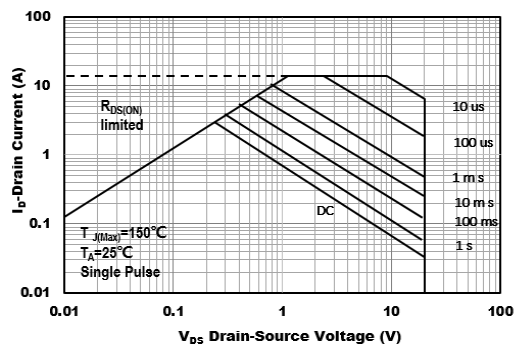


Figure7. Safe Operation Area

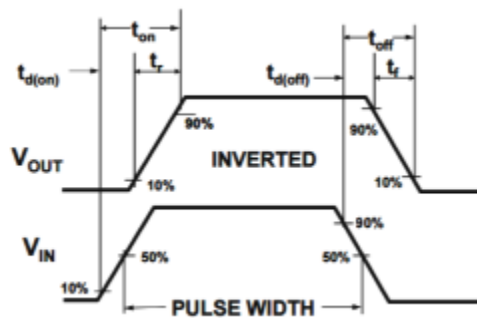
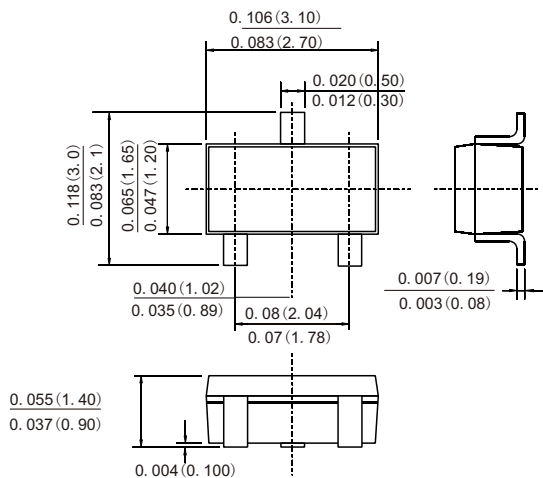


Figure8. Switching wave

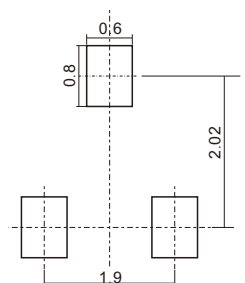
### PACKAGE OUTLINE DIMENSIONS

#### SOT-23



Dimensions in inches and (millimeters)

#### Suggested Pad Layout



Dimensions in millimeters

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