

FEATURES

- $R_{DS(ON)} < 37m\Omega @ V_{GS}=2.5V$
- $R_{DS(ON)} < 27m\Omega @ V_{GS}=4.5V$
- Trench Power LV MOSFET technology

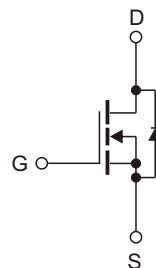
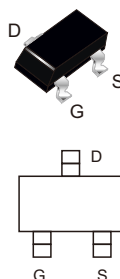


Product Summary			
V_{DS}	$R_{DS(on)}$ (m Ω) Typ	I_D (A)	Q_g (Typ)
20V	29 @ 2.5V	4.3	6.6nc
	21 @ 4.5V		

MECHANICAL DATA

- Case: SOT-23(TO-236)
- Terminals: Plated solderable per MIL-STD-750, method 2026
- Mounting Position: Any
- Marking: 2302

SOT-23



N-channel MOSFET

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

Parameters		Symbol	Value	Unit
Drain-Source voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	± 10	V
Continuous Drain Current	$T_A=25^\circ\text{C}$ @ Steady State	I_D	4.3	A
	$T_A=70^\circ\text{C}$ @ Steady State		3.5	
Maximum Power Dissipation @ $T_A=25^\circ\text{C}$		P_D	1.0	W
Junction and Storage Temperature Range		T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

Thermal Resistance Ratings

Parameters	Symbol	Typ	Max	Unit
Junction to Ambient, Steady State ²⁾	$R_{\theta JA}$	-	125	$^\circ\text{C}/\text{W}$

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

Electrical Characteristics (T_J=25°C unless otherwise noted)

Parameters	Symbol	Conditions	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V, I _D =250μA	20	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =20V, V _{GS} =0V, T _C =25°C	-	-	1	μA
Gate-Source Leakage Current	I _{GSS}	V _{GS} = ±10V, V _{DS} =0V	-	-	±100	nA
Gate-Source Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D =250μA	0.55	0.85	1.25	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} = 4.5V, I _D =4.3A	-	21	27	mΩ
		V _{GS} = 2.5V, I _D =3.0A	-	29	37	
Dynamic						
Input Capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V, f=1MHz	-	595	-	pF
Output Capacitance	C _{oss}		-	106	-	
Reverse Transfer Capacitance	C _{rss}		-	59	-	
Total Gate Charge	Q _g	V _{DS} =10V, V _{GS} =4.5V, I _D =4.3A	-	6.6	-	nC
Gate-Source Charge	Q _{gs}		-	0.9	-	
Gate-Drain Charge	Q _{gd}		-	1.4	-	
Turn-on Delay Time	t _{D(on)}	V _{GS} =4.5V, V _{DD} =10V, R _L =1.5Ω, R _{GEN} =3Ω	-	13	-	ns
Turn-On Rise Time	t _r		-	54	-	
Turn-off Delay Time	t _{D(off)}		-	18	-	
Turn-Off Fall Time	t _f		-	11	-	
Drain-Source Body-Diode Characteristics						
Maximum Body-Diode Continuous Current	I _S		-	-	4.3	A
Diode Forward Voltage	V _{SD}	I _S =4.3A, V _{GS} =0V	-	-	1.2	V

Typical Characteristics Diagrams

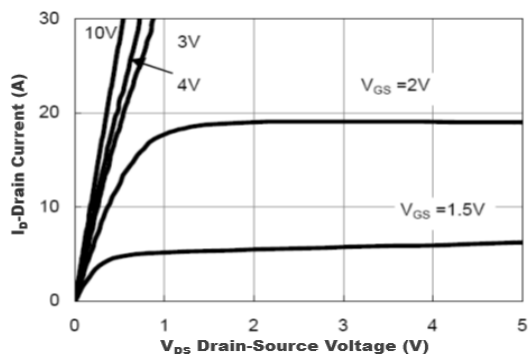


Figure1. Output Characteristics

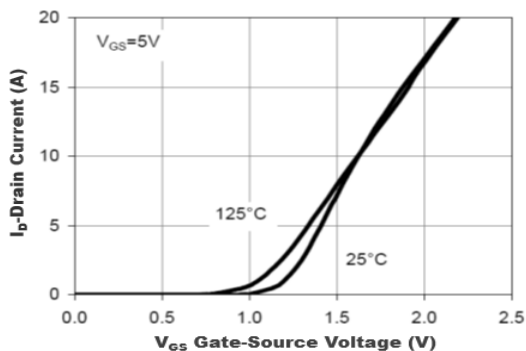


Figure2. Transfer Characteristics

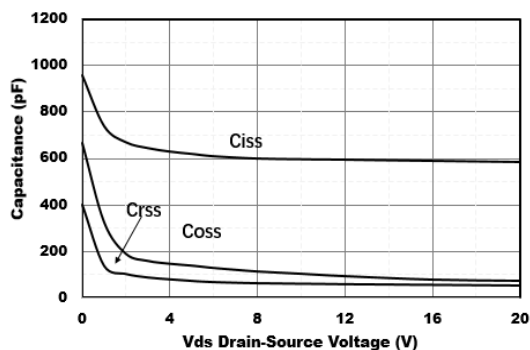


Figure3. Capacitance Characteristics

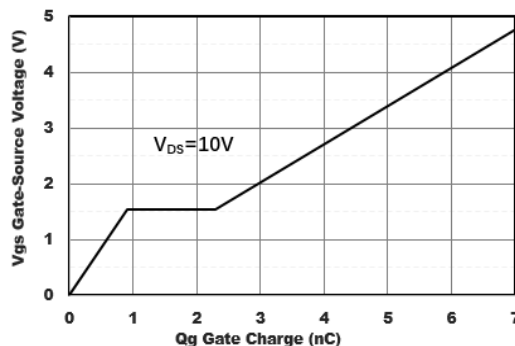


Figure4. Gate Charge

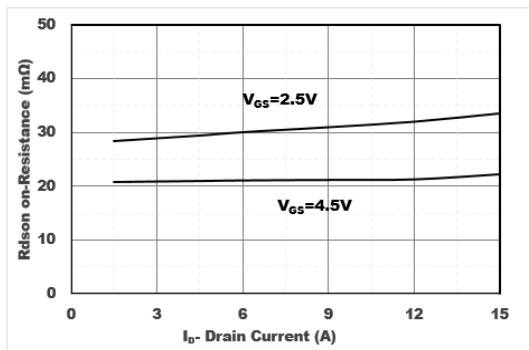


Figure5. Drain-Source on Resistance

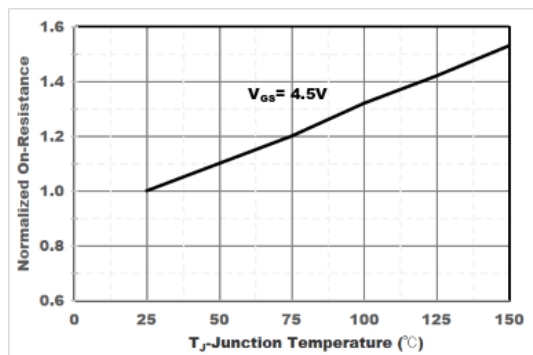


Figure6. Drain-Source on Resistance

Typical Characteristics Diagrams

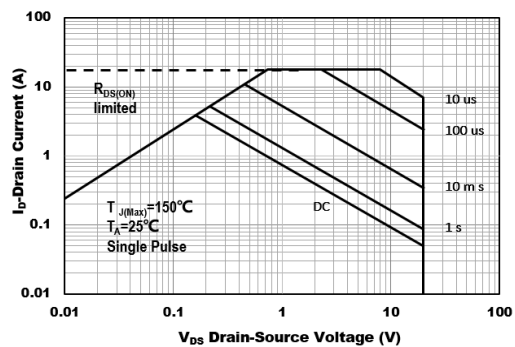


Figure7. Safe Operation Area

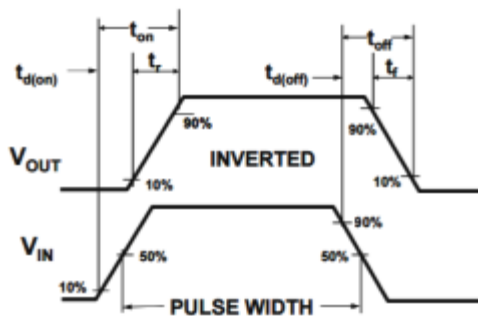
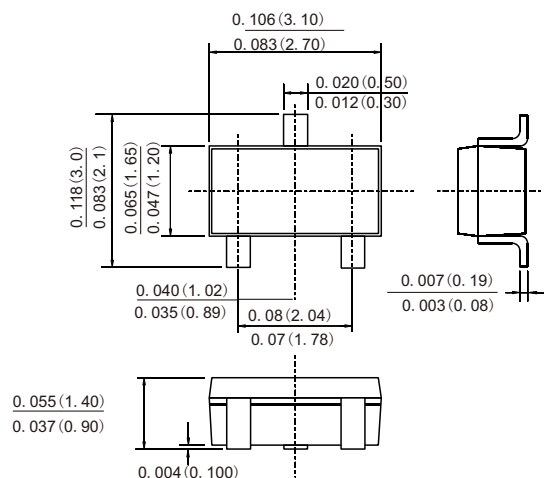


Figure8. Switching wave

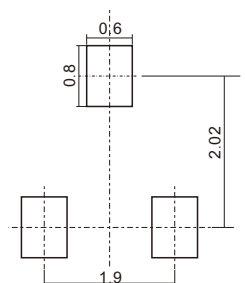
PACKAGE OUTLINE DIMENSIONS

SOT-23



Dimensions in inches and (millimeters)

Suggested Pad Layout



Dimensions in millimeters

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