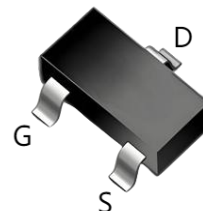
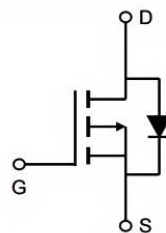


P-Channel Enhancement Mode MOSFET

Parameter	Value	Unit
V_{DS}	-60	V
$R_{DS(on)}$	3.3	Ω
I_D	-0.17	A



SOT-23

Features

- Advanced trench cell design
- High speed switch
- Low Gate Charge

Applications

- Portable appliances
- Video monitor

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

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	-60	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current $V_{GS} @ -4.5\text{V}^1$	$T_C=25^{\circ}\text{C}$	I_D	-0.17	A
Continuous Drain Current $V_{GS} @ -4.5\text{V}^1$	$T_C=70^{\circ}\text{C}$	I_D	-0.14	A
Pulsed Drain Current ²	$T_C=25^{\circ}\text{C}$	I_{DM}	-1.2	A
Total Power Dissipation ³	$T_C=25^{\circ}\text{C}$	P_D	0.35	W
Thermal Resistance Junction to Ambient ¹		$R_{\theta JA}$	357	$^{\circ}\text{C/W}$
Maximum Junction Temperature		T_J	-55 to 150	$^{\circ}\text{C}$
Storage Temperature Range		T_{STG}	-55 to 150	$^{\circ}\text{C}$

Electrical Characteristics (Ta=25°C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$B_{V_{DS}}$	$V_{GS}=0V, I_D=-250\mu A$	-60	--	--	V
Static Drain-Source On-Resistance ²	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-0.15A$	--	3.3	8	Ω
		$V_{GS}=-4.5V, I_D=-0.15A$	--	3.5	9.9	
		$V_{GS}=-2.5V, I_D=-0.15A$	--	--	--	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=-250\mu A$	-0.9	-1.4	-2.0	V
VGS(th) Temperature Coefficient	$\Delta V_{GS(th)}$		--	--	--	mV/C
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=-60V, V_{GS}=0V, T_J=25^\circ C$	--	--	-1	μA
		$V_{DS}=-60V, V_{GS}=0V, T_J=55^\circ C$	--	--	--	
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	--	--	± 100	nA
Forward Transconductance	g_{fs}	$V_{DS}=-5V, I_D=-3A$	--	--	--	S
Total Gate Charge (-4.5V)	Q_g	$V_{DS}=-30V, V_{GS}=-10V, I_D=-0.15A$	--	1.77	--	nC
Gate-Source Charge	Q_{gs}		--	0.57	--	
Gate-Drain Charge	Q_{gd}		--	0.18	--	
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=-30V, V_{GS}=-4.5V, R_G=2.5\Omega, I_D=-0.15A$	--	8.6	--	ns
Rise Time	t_r		--	20	--	
Turn-Off Delay Time	$t_{d(off)}$		--	15	--	
Fall Time	t_f		--	77	--	
Input Capacitance	C_{iss}	$V_{DS}=-30V, V_{GS}=0V, f=1MHz$	--	43	--	pF
Output Capacitance	C_{oss}		--	2.9	--	
Reverse Transfer Capacitance	C_{rss}		--	1.8	--	

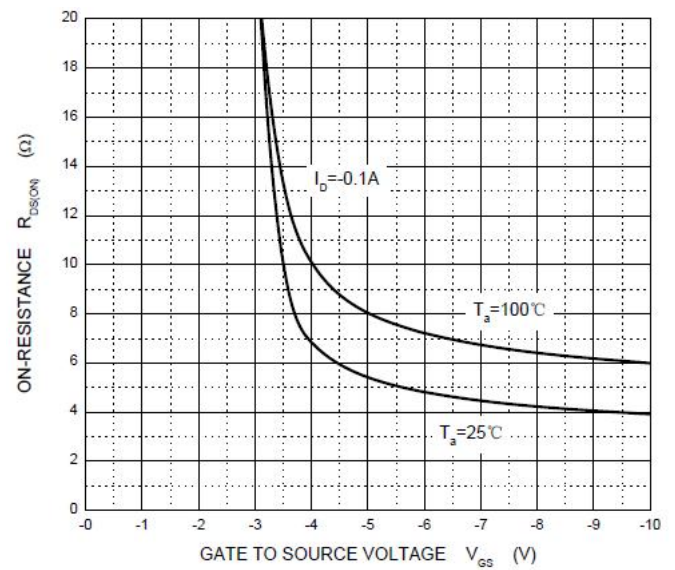
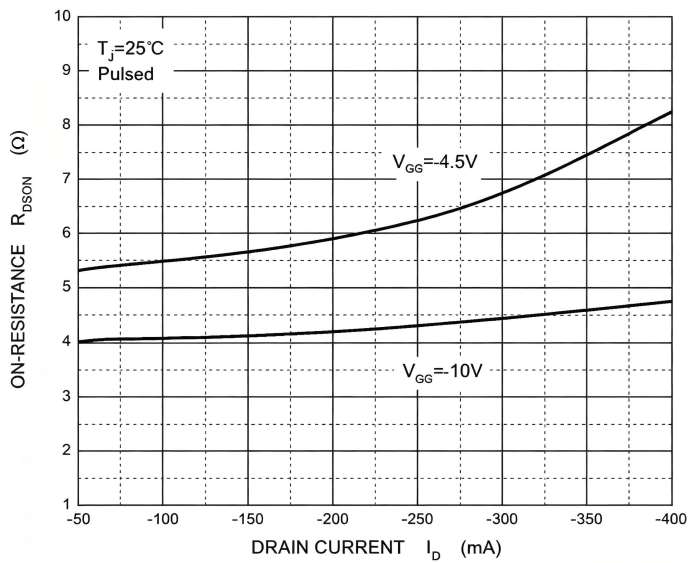
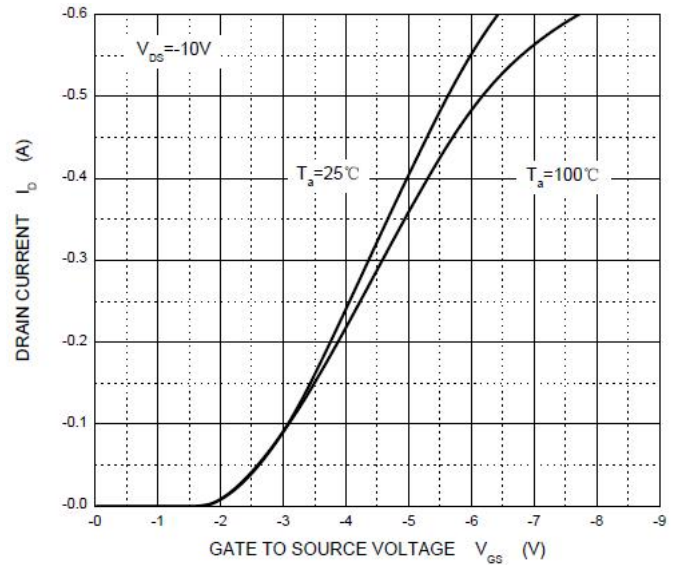
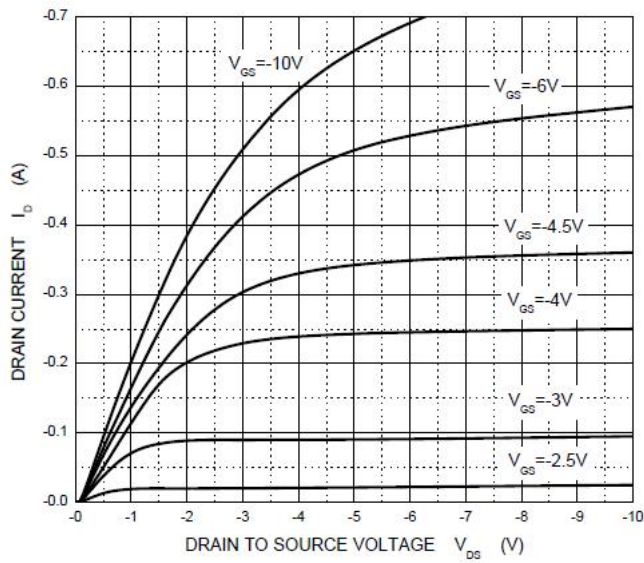
Diode Characteristics

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Continuous Source Current ^{1,4}	I_S	$V_G=V_D=0V, \text{Force Current}$	--	--	-0.17	A
Pulsed Source Current ^{2,4}	I_{SM}		--	--	--	A
Diode Forward Voltage ²	V_{SD}	$V_{GS}=0V, I_S=-0.17A, T_J=25^\circ C$	--	--	-1.2	V
Reverse Recovery Time	t_{rr}	$I_F=-0.15A, di/dt=100A/\mu s, T_J=25^\circ C$	--	23	--	nS
Reverse Recovery Charge	Q_{rr}		--	13	--	nC

Note :

- A. Pulse Test: Pulse Width $\leq 10\mu s$, Duty cycle $\leq 2\%$.
 B. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

Typical Characteristics



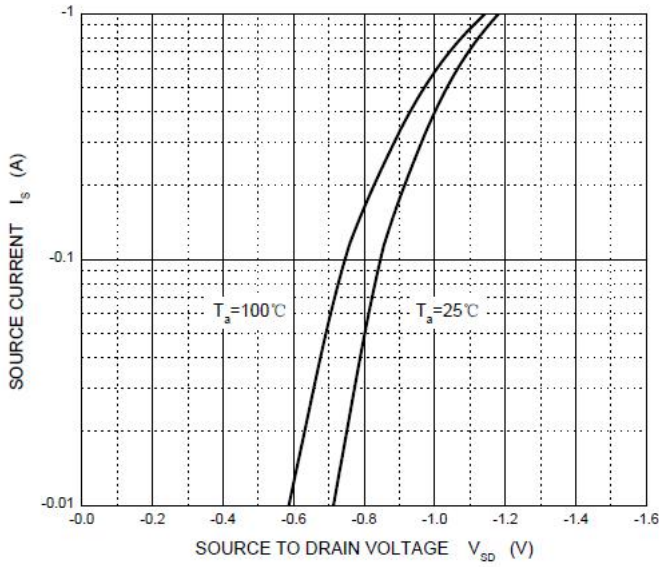


Fig 5. Diode Forward Voltage vs. current

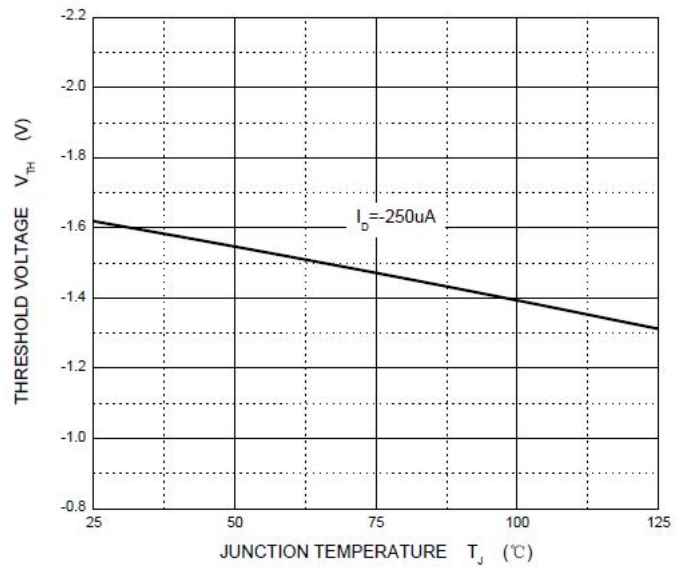


Fig 6. Gate Threshold vs. Junction Temperature

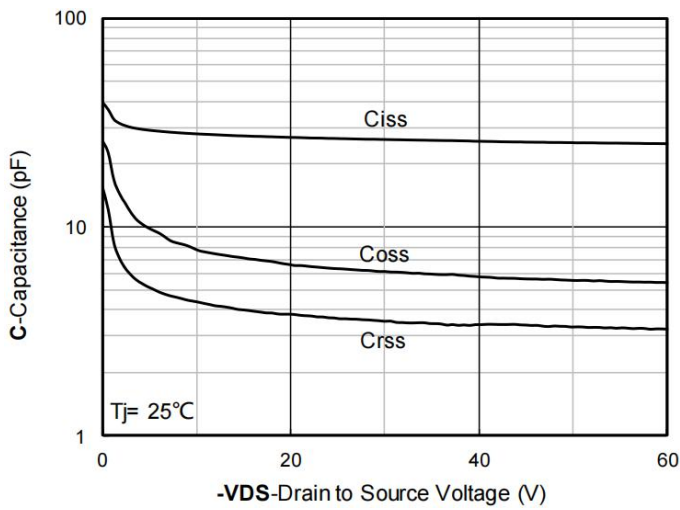


Fig 7. Capacitance Characteristics

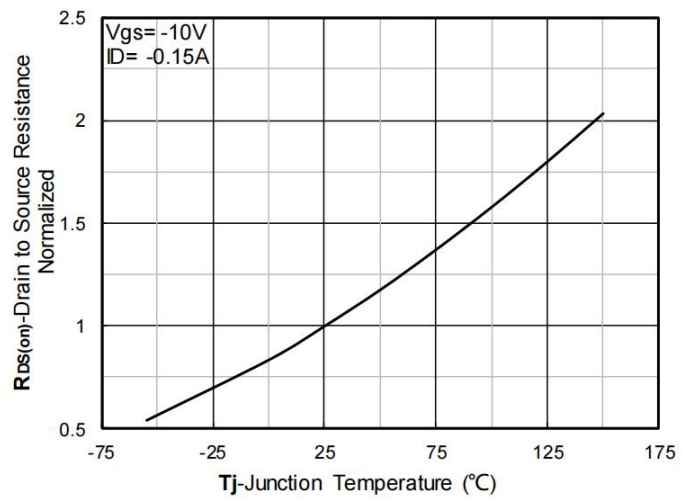
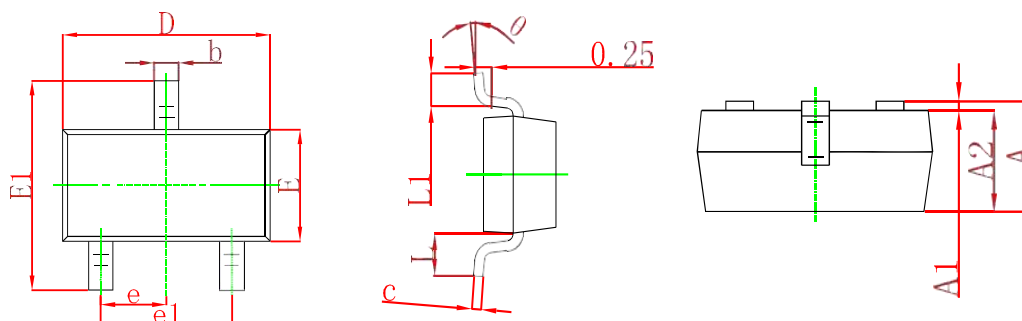


Fig 8. Normalized On-Resistance

Package Outline Dimensions (Units: mm)

SOT-23



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

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