

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-30V	55mΩ@-10V	-4A
	85mΩ@-4.5V	

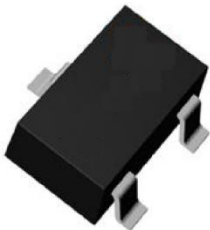
Feature

- Trench power LV MOSFET technology
- Low $R_{DS(on)}$
- Surface mount package

Application

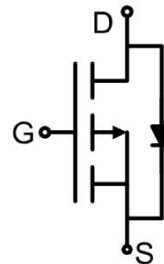
- Battery protection
- Hand-Held instruments
- Load switch
- Notebook

Package

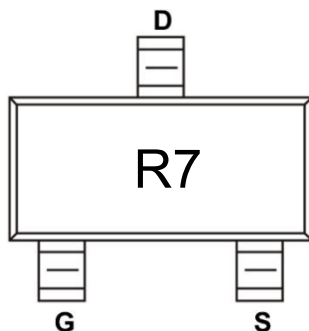


SOT-23

Circuit diagram



Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	-4	A
Pulsed Drain Current ¹⁾	I_{DM}	-16	A
Power Dissipation	P_D	1.25	W
Thermal Resistance Junction to Ambient ²⁾	$R_{\theta JA}$	100	$^{\circ}\text{C}/\text{W}$
Operating Junction Temperature	T_J	-55 ~ +150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 ~ +150	$^{\circ}\text{C}$

Electrical characteristics ($T_A=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{V}, I_D = -250\mu\text{A}$	-30			V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = -30\text{V}, V_{GS} = 0\text{V}$			-1	μA
Gate-body leakage current	I_{GSS}	$V_{DS} = 0\text{V}, V_{GS} = \pm 20\text{V}$			± 100	nA
Gate threshold voltage ³⁾	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu\text{A}$	-1	-1.6	-2.2	V
Drain-source on-resistance ³⁾	$R_{DS(on)}$	$V_{GS} = -10\text{V}, I_D = -4\text{A}$		44	55	m Ω
		$V_{GS} = -4.5\text{V}, I_D = -3\text{A}$		68	85	
Dynamic characteristics⁴⁾						
Input Capacitance	C_{iss}	$V_{DS} = -15\text{V}, V_{GS} = 0\text{V}, f = 1\text{MHz}$		590		pF
Output Capacitance	C_{oss}			62		
Reverse Transfer Capacitance	C_{rss}			43		
Total Gate Charge	Q_g	$V_{DS} = -15\text{V}, V_{GS} = -4.5\text{V}$ $I_D = -4\text{A}$		5.1		nC
Gate-Source Charge	Q_{gs}			2		
Gate-Drain Charge	Q_{gd}			2.2		
Turn-on delay time	$t_{d(on)}$	$V_{DS} = -15\text{V}, V_{GS} = -10\text{V}$ $I_D = -1\text{A}, R_G = 3.3\Omega$		3.4		nS
Turn-on rise time	t_r			10.8		
Turn-off delay time	$t_{d(off)}$			26		
Turn-off fall time	t_f			7		
Source-Drain Diode characteristics						
Diode Forward Current	I_S				-4	A
Diode Forward voltage ³⁾	V_{SD}	$V_{GS} = 0\text{V}, I_S = -3\text{A}$			-1.2	V

Notes:

- 1) Repetitive rating: Pulse width limited by maximum junction temperature.
- 2) Surface Mounted on FR4 board, $t \leq 10$ sec.
- 3) Pulse test: Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.
- 4) Guaranteed by design, not subject to production testing.

Typical Characteristics

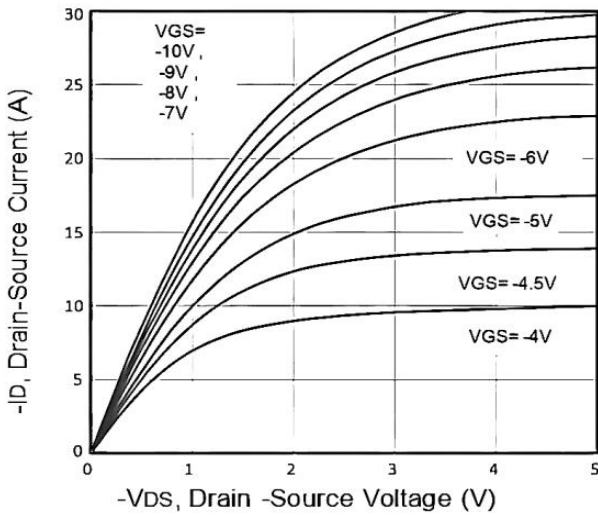


Fig1. Typical Output Characteristics

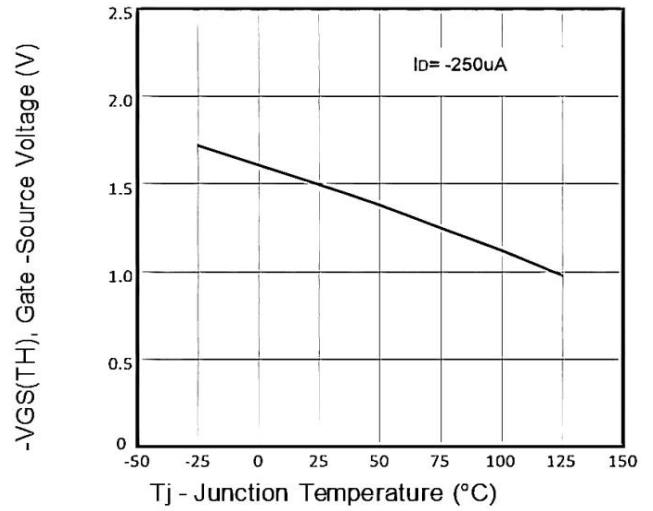


Fig2. Normalized Threshold Voltage Vs. Temperature

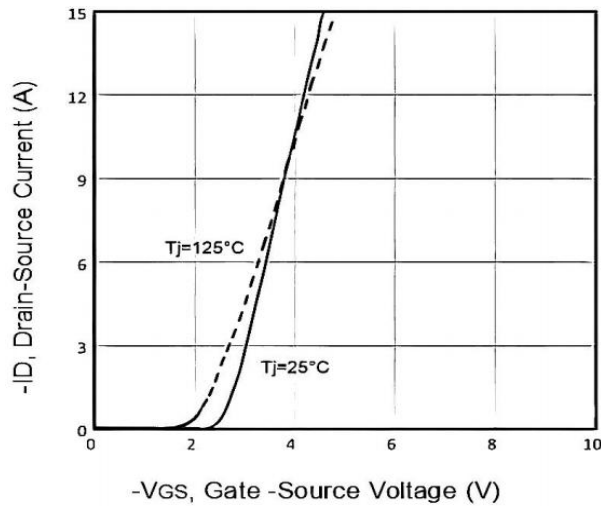


Fig3. Typical Transfer Characteristics

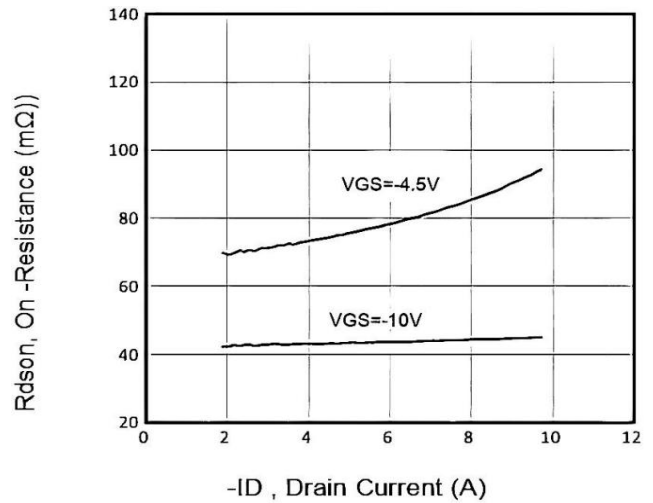


Fig4. On-Resistance vs. Drain Current and Gate

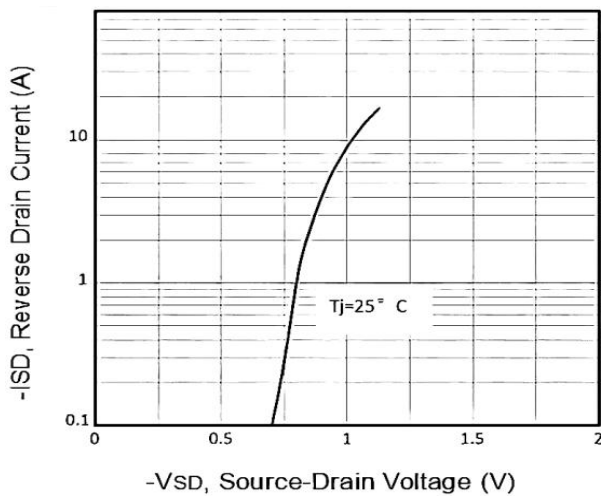


Fig5. Typical Source-Drain Diode Forward Voltage

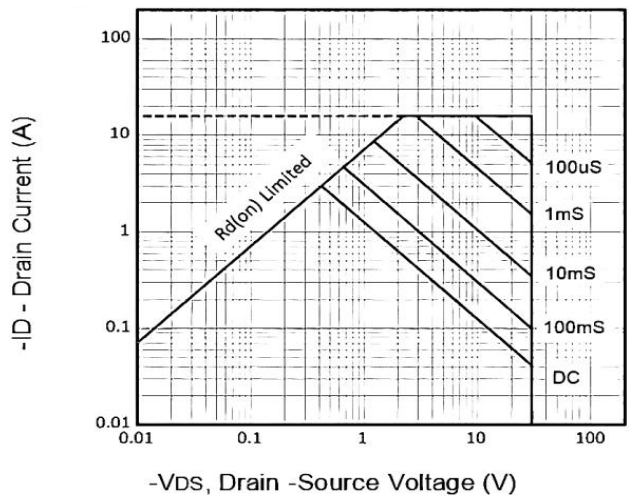


Fig6. Maximum Safe Operating Area

Typical Characteristics

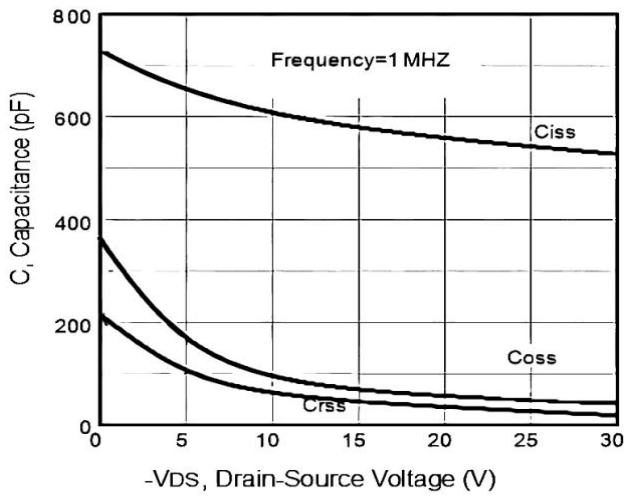


Fig7. Typical Capacitance Vs. Drain-Source Voltage

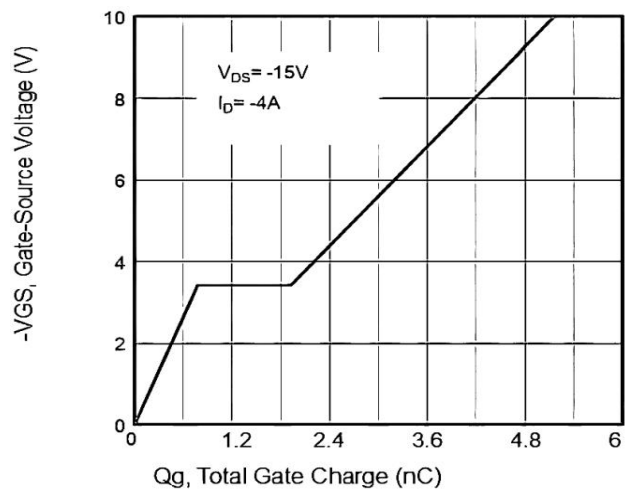
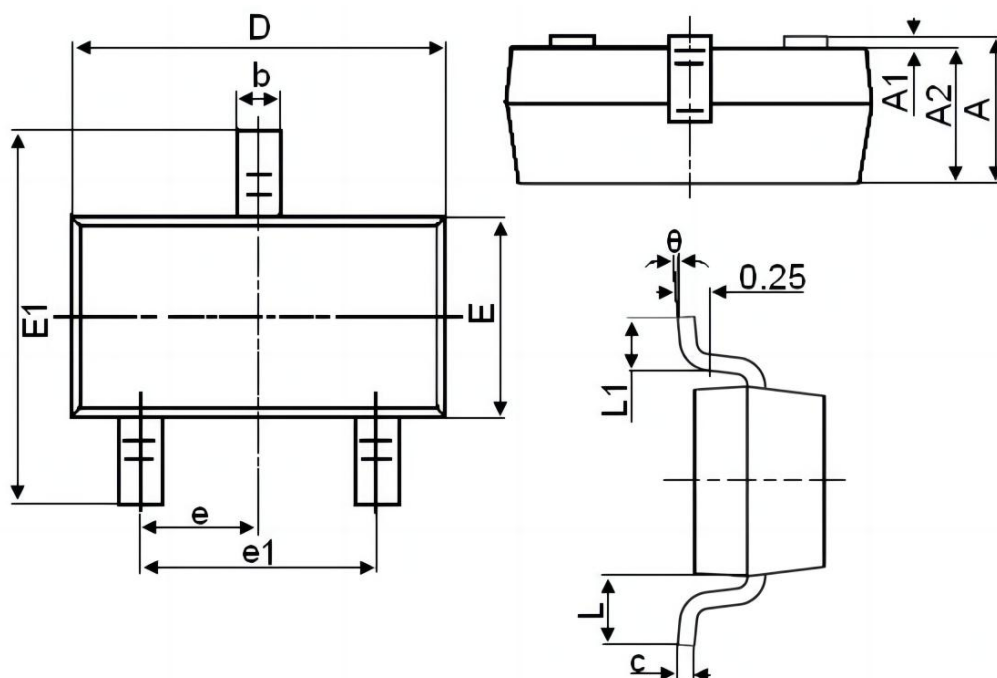


Fig8. Typical Gate Charge Vs. Gate-Source Voltage

SOT-23 Package Information



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°