



Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-20V	400mΩ@-4.5V	-0.66A
	570mΩ@-2.5V	
	810mΩ@-1.8V	

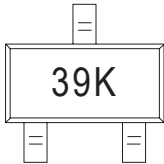
Feature

- Trench Technology Power MOSFET
- Low $R_{DS(ON)}$
- Low Gate Charge
- ESD Protected

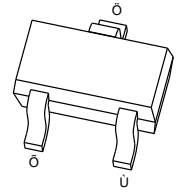
Application

- Load Switching
- Low Current Inverters
- Low Current DC/DC Converters

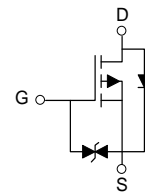
MARKING:



SOT-523



Schematic diagram



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain - Source Voltage	V_{DS}	-20	V
Gate - Source Voltage	V_{GS}	± 12	V
Continuous Drain Current ^{1,5}	I_D	-0.66	A
Pulsed Drain Current ²	I_{DM}	-2.0	A
Power Dissipation ^{4,5}	P_D	0.25	W
Thermal Resistance from Junction to Ambient ⁵	$R_{\theta JA}$	500	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^\circ\text{C}$

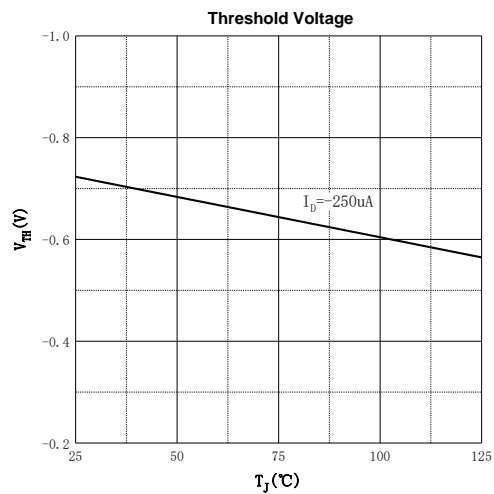
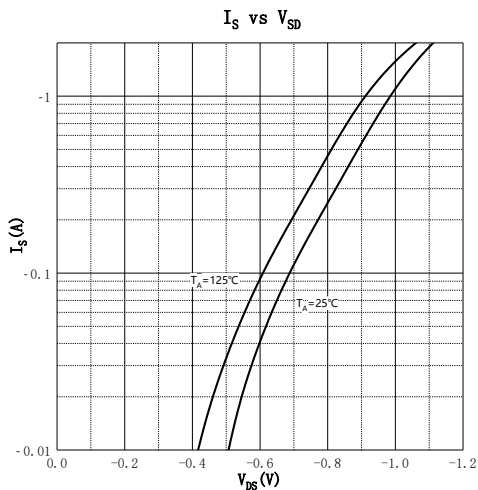
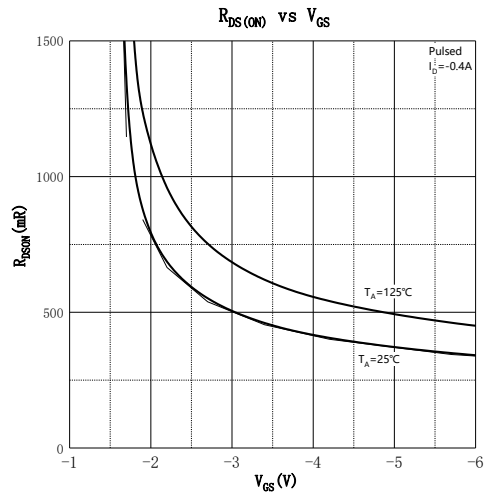
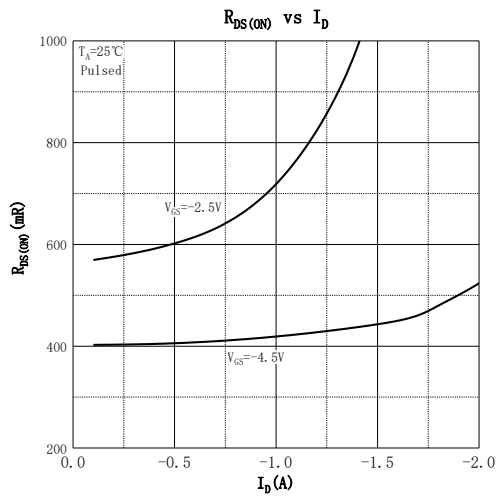
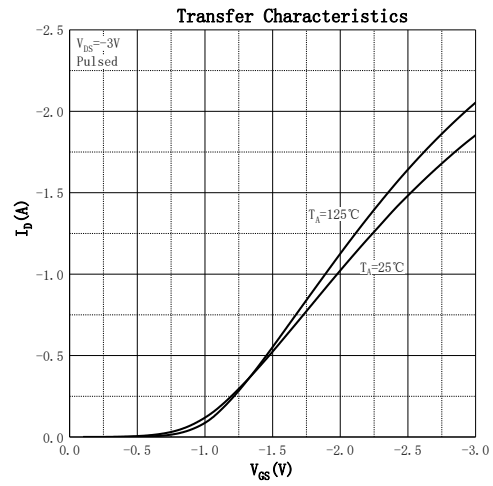
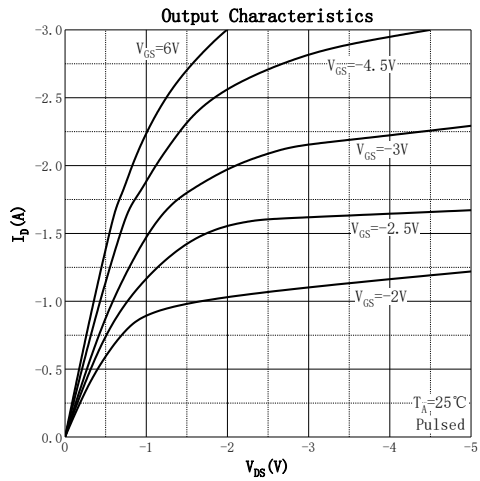
MOSFET ELECTRICAL CHARACTERISTICS (T_J = 25°C unless otherwise noted)

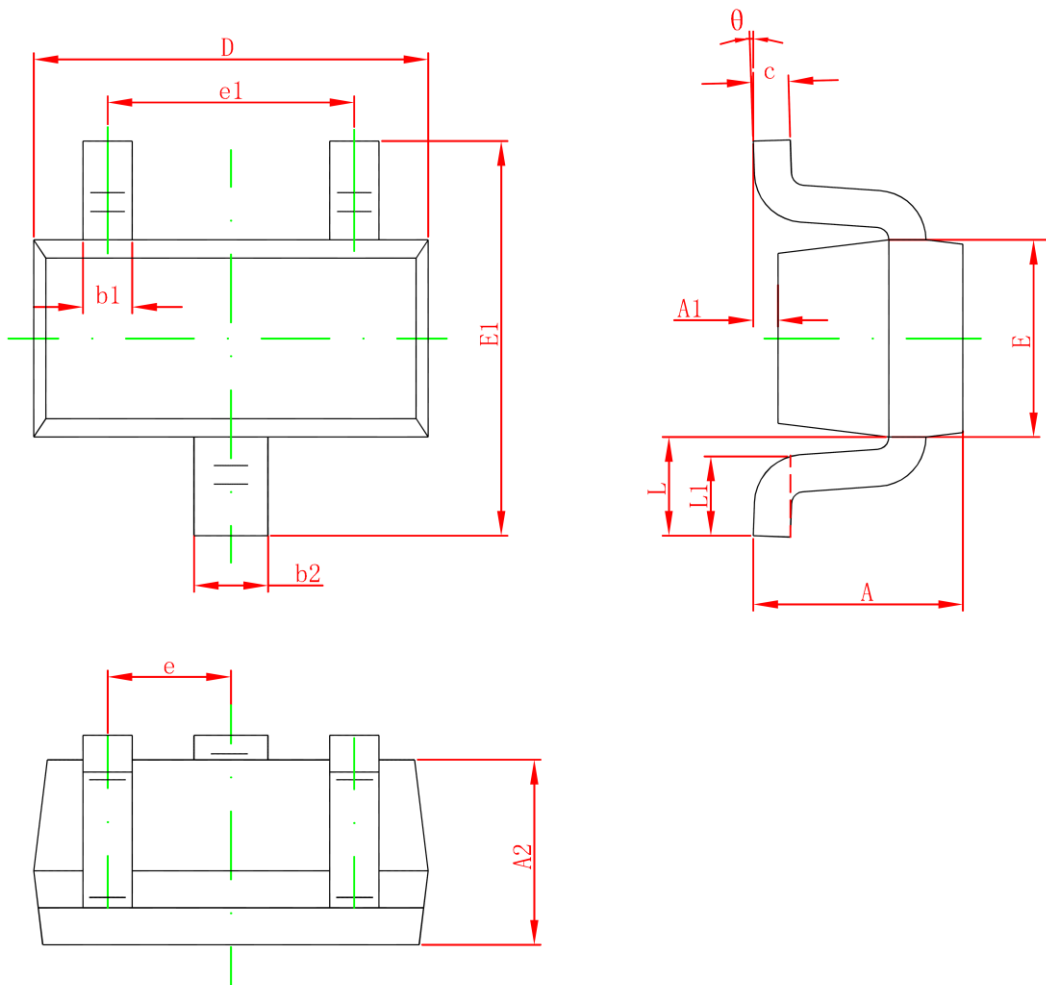
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -16V, V _{GS} = 0V			-1	μA
Gate - Body Leakage Current	I _{GSS}	V _{GS} = ±10V, V _{DS} = 0V			±10	μA
On Characteristics³						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-0.4	-0.7	-1.0	V
Drain-source On-resistance	R _{DS(on)}	V _{GS} = -4.5V, I _D = -0.5A		400	520	mΩ
		V _{GS} = -2.5V, I _D = -0.3A		570	780	
		V _{GS} = -1.8V, I _D = -0.12A		810	1100	
Forward Transconductance	g _{FS}	V _{DS} = -5V, I _D = -0.4A		1		S
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = -10V, V _{GS} = 0V, f = 1MHz		79		pF
Output Capacitance	C _{oss}			15		
Reverse Transfer Capacitance	C _{rss}			13		
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} = -10V, V _{GS} = -4.5V, I _D = -0.2A		2.26		nC
Gate-source Charge	Q _{gs}			0.45		
Gate-drain Charge	Q _{gd}			0.24		
Turn-on Delay Time	t _{d(on)}	V _{DD} = -10V, V _{GS} = -4.5V, R _L = 50Ω, R _G = 3Ω		8		ns
Turn-on Rise Time	t _r			5.5		
Turn-off Delay Time	t _{d(off)}			30		
Turn-off Fall Time	t _f			17		
Source - Drain Diode Characteristics						
Diode Forward Voltage ³	V _{SD}	V _{GS} = 0V, I _S = -0.5A			1.2	V

Notes :

- 1.The maximum current rating is limited by package.
- 2.Repetitive rating:pulse width limited by T_{J(MAX)} = 150°C.
- 3.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.
- 4.The power dissipation P_D is limited by T_{J(MAX)} = 150°C.
- 5.Device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.

Typical Characteristics



SOT-523 Package Information


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e1	0.900	1.100	0.035	0.043
e	0.500TYP		0.020TYP	
L	0.400REF		0.016REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°