



#### Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
50V	0.92Ω@10V	0.3A
	0.98Ω@4.5V	
	1.2Ω@2.5V	

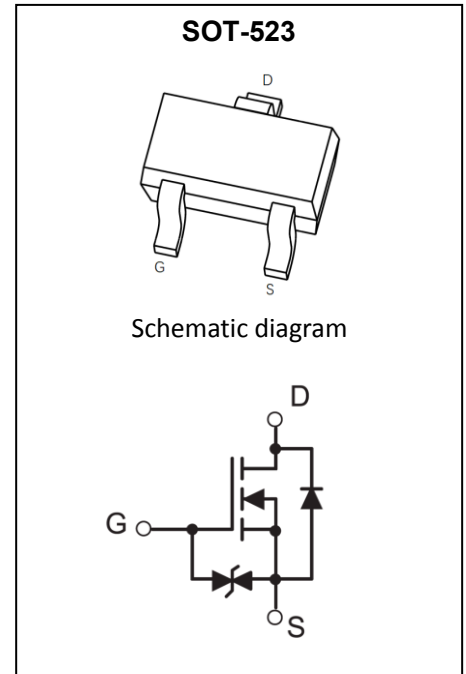
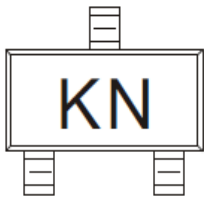
#### Feature

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

#### Application

- Load Switch
- DC/DC Converter

#### MARKING



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

Parameter	Symbol	Value	Unit
Drain - Source Voltage	$V_{DS}$	50	V
Gate - Source Voltage	$V_{GS}$	±20	V
Continuous Drain Current <sup>1,4</sup>	$I_D$	0.3	A
Pulsed Drain Current <sup>2</sup>	$I_{DM}$	1.2	A
Power Dissipation <sup>4,5</sup>	$P_D$	0.25	W
Thermal Resistance from Junction to Ambient <sup>5</sup>	$R_{\theta JA}$	500	$^\circ\text{C}/\text{W}$
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55~ +150	$^\circ\text{C}$

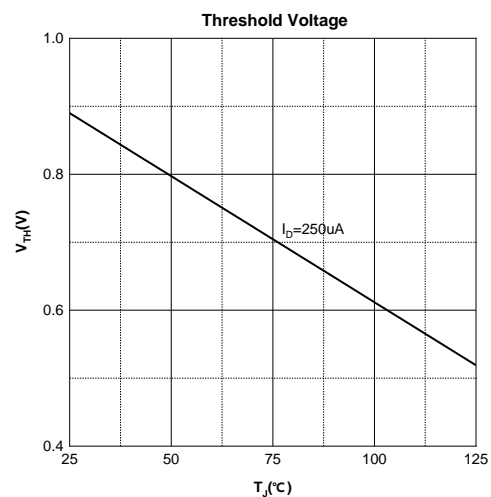
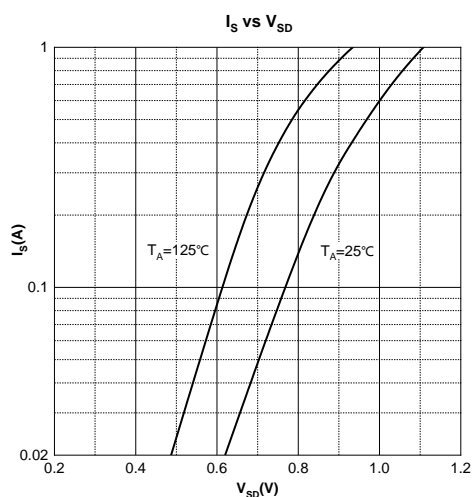
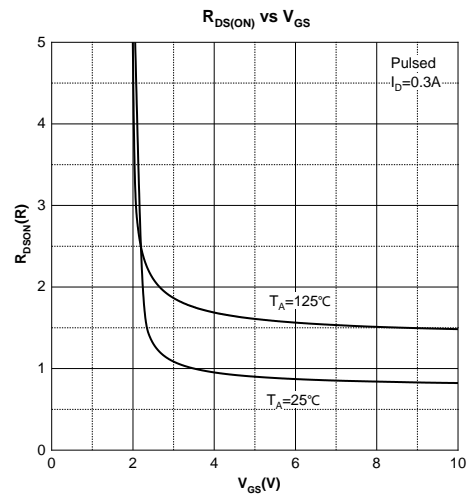
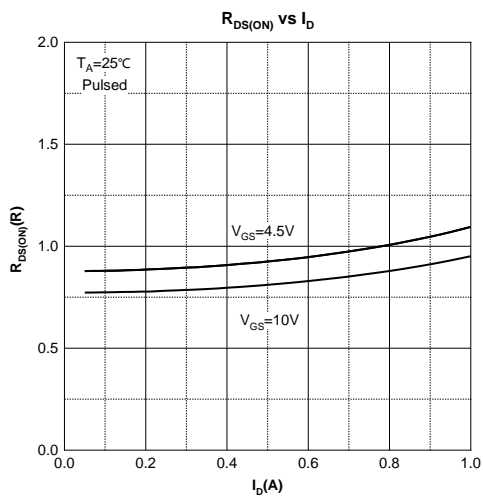
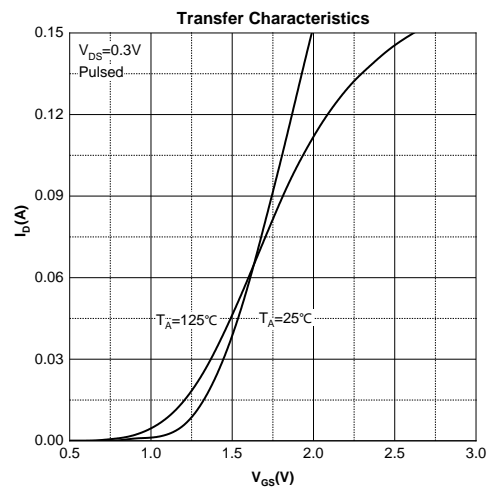
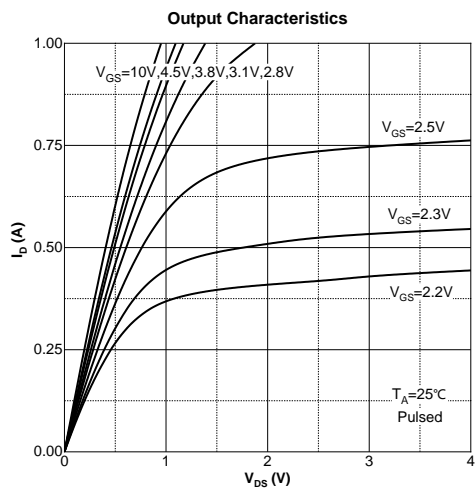
**MOSFET ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted)**

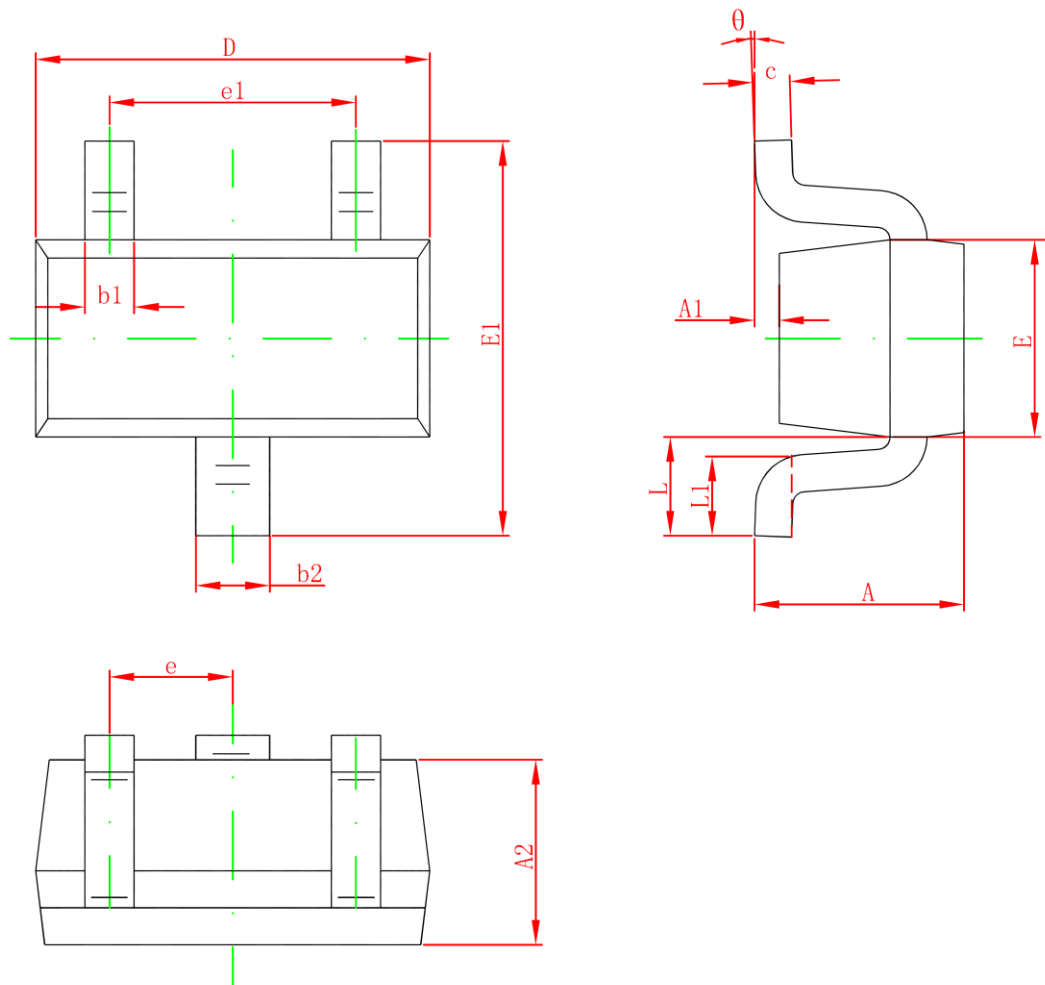
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
<b>Off Characteristics</b>						
Drain - Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	50			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 50V, V <sub>GS</sub> = 0V			1	μA
Gate - Body Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> = ±20V, V <sub>DS</sub> = 0V			±2	μA
<b>On Characteristics<sup>3</sup></b>						
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	0.6	0.9	1.5	V
Drain-source On-resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 0.3A		0.92	2.5	Ω
		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 0.2A		0.98	3	
		V <sub>GS</sub> = 2.5V, I <sub>D</sub> = 0.01A		1.2	4.5	
<b>Dynamic Characteristics</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 15V, V <sub>GS</sub> = 0V, f = 1MHz		30		pF
Output Capacitance	C <sub>oss</sub>			5.2		
Reverse Transfer Capacitance	C <sub>rss</sub>			3.3		
Gate Resistance	R <sub>g</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = 0V, f = 1MHz		157		
<b>Switching Characteristics</b>						
Turn-on Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> = 5V, V <sub>GS</sub> = 5V, I <sub>D</sub> = 10mA, R <sub>G</sub> = 10Ω, R <sub>L</sub> = 500Ω		15		ns
Turn-on Rise Time	t <sub>r</sub>			35		
Turn-off Delay Time	t <sub>d(off)</sub>			80		
Turn-off Fall Time	t <sub>f</sub>			80		
<b>Source - Drain Diode Characteristics</b>						
Diode Forward Voltage <sup>3</sup>	V <sub>SD</sub>	V <sub>GS</sub> = 0V, I <sub>S</sub> = 0.3A			1.2	V

Notes :

- 1.The maximum current rating is limited by package.
- 2.Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.
- 3.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.
- 4.The power dissipation P<sub>D</sub> is limited by T<sub>J(MAX)</sub> = 150°C.
- 5.Device mounted on 1in<sup>2</sup> FR-4 board with 2oz. Copper, in a still air environment with T<sub>A</sub> =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
$\theta$	0°	8°	0°	8°