

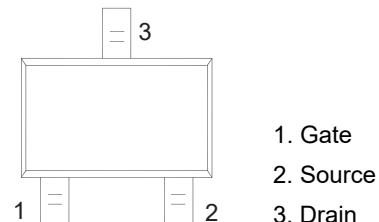
SOT-523 Plastic-Encapsulate MOSFETS

Features

- TrenchFET Power MOSFET

SOT-523

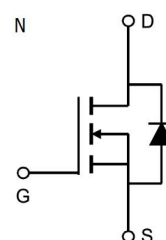
RoHS
COMPLIANT



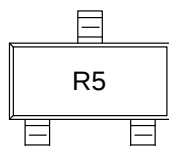
Applications

- Load Switch for Portable Devices
- DC/DC Converter

Equivalent Circuit



Marking



R5 = Device code

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}	± 8	
Continuous Drain Current	I_D	2.1	A
Continuous Source-Drain Current(Diode Conduction)	I_S	0.6	
Power Dissipation	P_D	0.35	W
Thermal Resistance from Junction to Ambient ($t \leq 5s$)	$R_{\theta JA}$	357	$^{\circ}\text{C}/\text{W}$
Operating Junction	T_J	150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 ~+150	

Electrical characteristics (T_a=25°C unless otherwise noted)

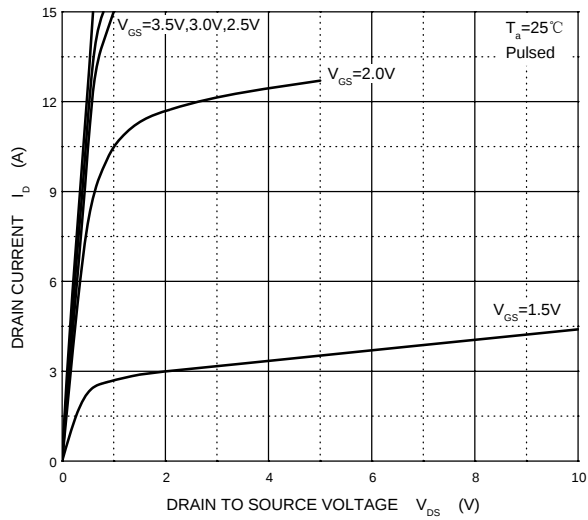
Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Static						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 10μA	20			V
Gate-threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	0.60	0.95	1.2	
Gate-body leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±8V			±100	nA
Zero gate voltage drain current	I _{DSS}	V _{DS} = 20V, V _{GS} = 0V			1	μA
Drain-source on-resistance ^a	r _{DS(on)}	V _{GS} = 4.5V, I _D = 2.0A		0.045	0.060	Ω
		V _{GS} = 2.5V, I _D = 1.0A		0.070	0.115	
Forward transconductance ^a	g _{fs}	V _{DS} = 5V, I _D = 2.0A		8		S
Diode forward voltage	V _{SD}	I _S = 0.94A, V _{GS} = 0V		0.76	1.2	V

Notes :

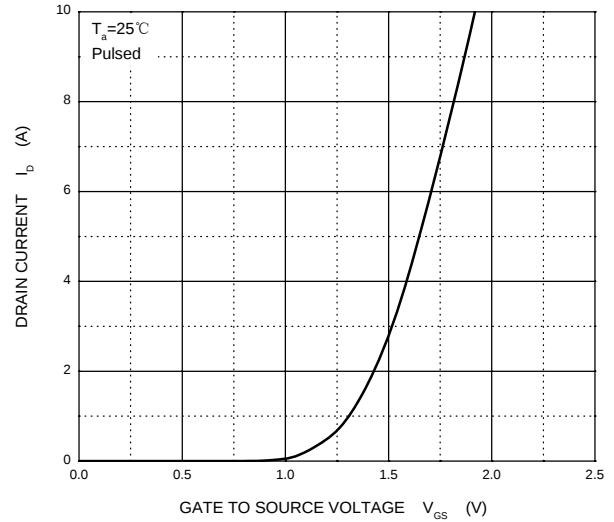
- Pulse Test : Pulse width ≤ 300μs, duty cycle ≤ 2%.
- These parameters have no way to verify.

Typical Characteristics

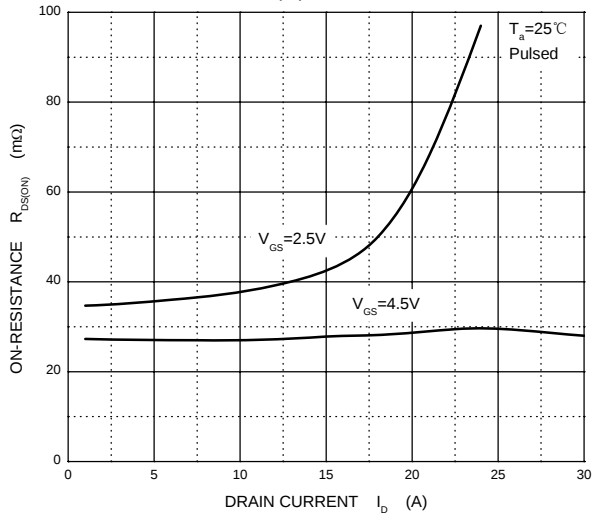
Output Characteristics



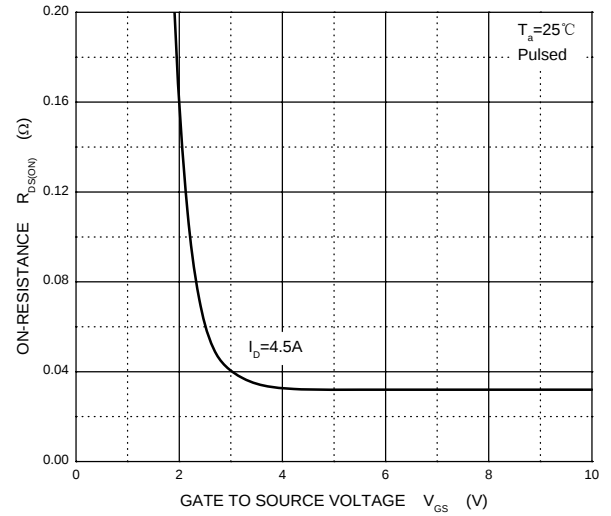
Transfer Characteristics



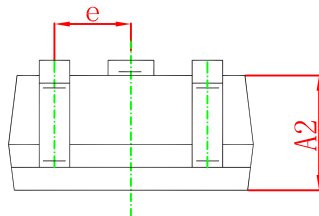
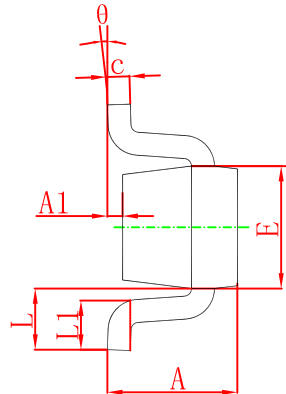
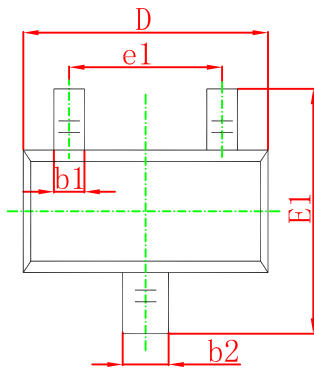
$R_{DS(ON)}$ — I_D



$R_{DS(ON)}$ — V_{GS}

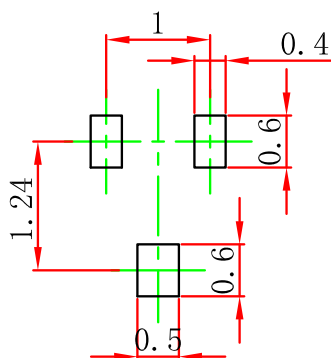


SOT-523 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.600	0.950	0.024	0.037
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	0.150	0.350	0.006	0.014
c	0.100	0.250	0.004	0.010
D	1.400	1.800	0.055	0.071
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500 TYP.		0.020 TYP.	
e1	0.900	1.100	0.035	0.043
L	0.400 REF.		0.016 REF.	
L1	0.150	0.450	0.006	0.018
θ	0°	8°	0°	8°

SOT-523 Suggested Pad Layout



Note:

1. Controlling dimension: in/millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.