

### Plastic-Encapsulate MOSFETS

N-Channel 20-V(D-S) MOSFET

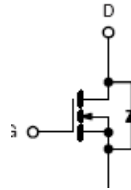
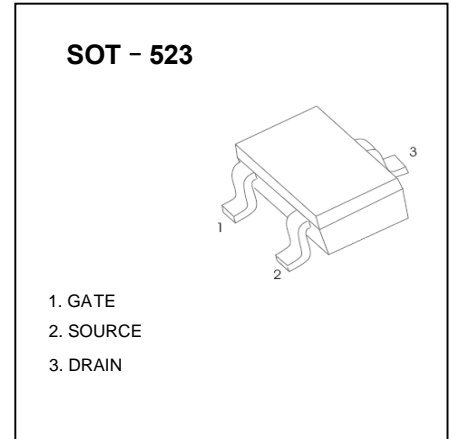
#### FEATURE

TrenchFET Power MOSFET

#### APPLICATIONS

- Load Switch for Portable Devices
- DC/DC Converter

MARKING: 2302



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	$V_{GS}$	$\pm 8$	
Continuous Drain Current	$I_D$	2.8	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 ( $T_a=25^\circ\text{C}$  unless otherwise noted)**

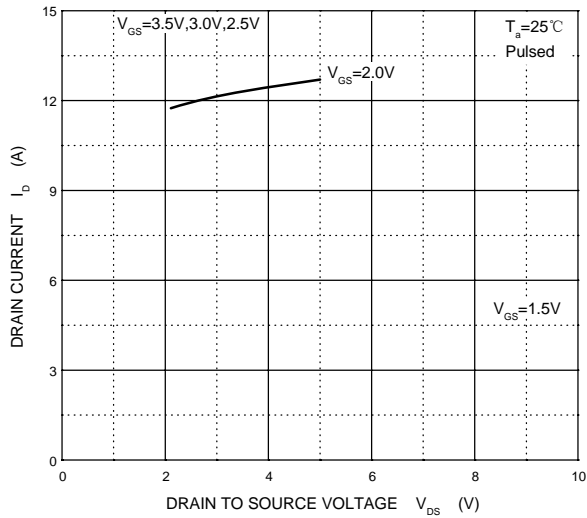
Parameter	Symbol	Test Condition	Min	Typ	Max	Units
<b>Static</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 10\mu A$	20			V
Gate-threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 50\mu A$	0.65	0.95	1.2	
Gate-body leakage	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 8V$			$\pm 100$	nA
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = 20V, V_{GS} = 0V$			1	$\mu A$
Drain-source on-resistance <sup>a</sup>	$r_{DS(on)}$	$V_{GS} = 4.5V, I_D = 2.8A$		0.045	0.060	$\Omega$
		$V_{GS} = 2.5V, I_D = 2.0A$		0.070	0.115	
Forward transconductance <sup>a</sup>	$g_{fs}$	$V_{DS} = 5V, I_D = 2.0A$		8		S
Diode forward voltage	$V_{SD}$	$I_S = 0.94A, V_{GS} = 0V$		0.76	1.2	V

**Notes :**

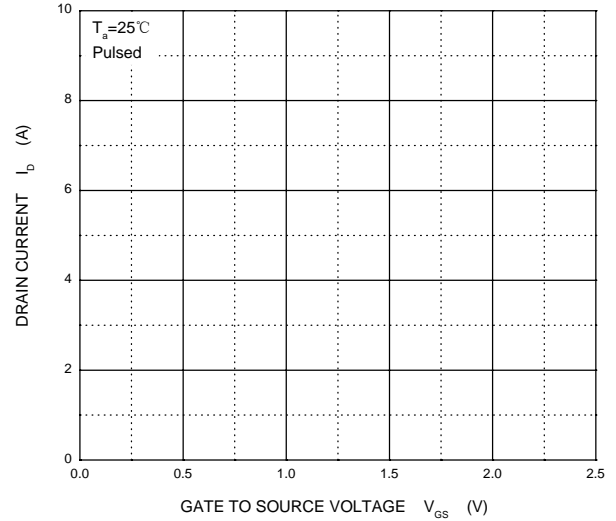
- Pulse Test : Pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$ .
- These parameters have no way to verify.

# Typical Characteristics

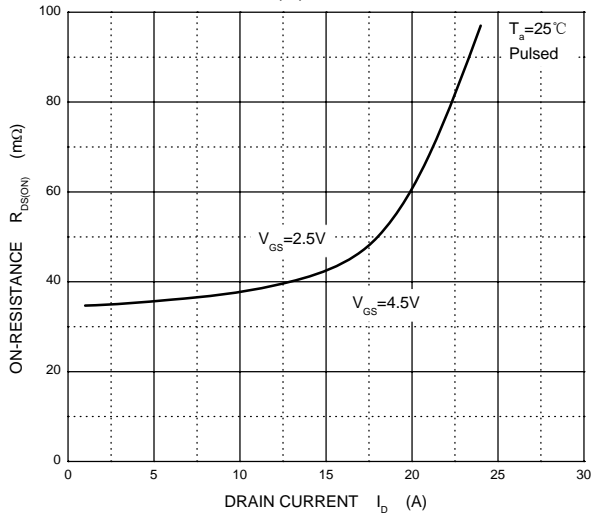
Output Characteristics



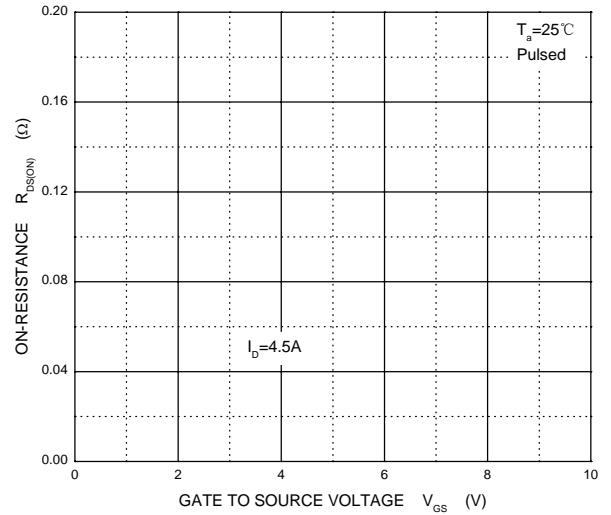
Transfer Characteristics



$R_{DS(ON)}$  —  $I_D$

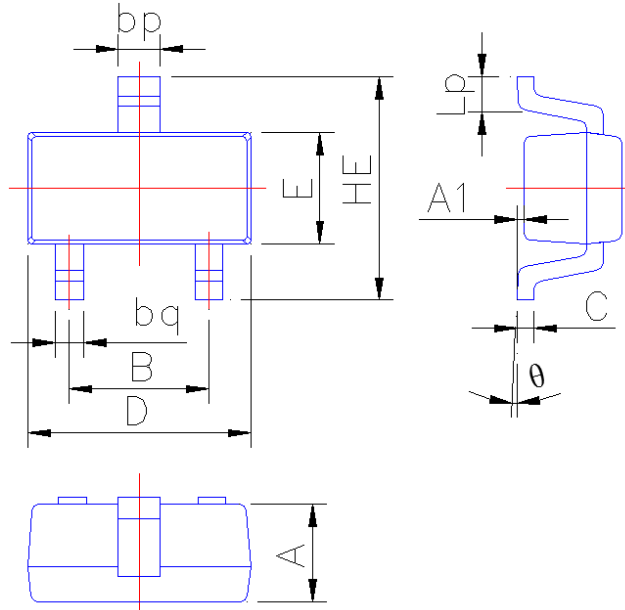


$R_{DS(ON)}$  —  $V_{GS}$





## SOT-523 PACKAGE OUTLINE



Symbol	Dimension in Millimeters	
	Min	Max
A	0.60	0.80
A1	0.010	0.100
B	0.95	1.05
bp	0.26	0.40
bq	0.16	0.30
C	0.09	0.15
D	1.50	1.70
E	0.70	0.85
HE	1.45	1.75
Lp	0.16	0.36
θ	0°	5°