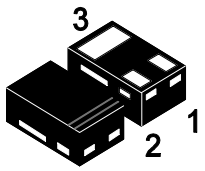
N-channel Trench MOSFET

FEATURE

- Lead Free Product is Acquired
- Surface Mount Package
- N-Channel Switch with Low R_{DS}(on)
- Operated at Low Logic Level Gate Drive
- ESD Protected Gate



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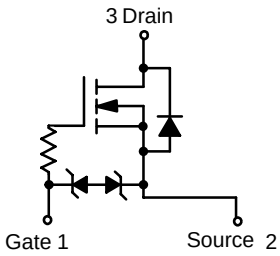


APPLICATION

- Load/ Power Switching
- Interfacing Switching
- Battery Management for Ultra Small Portable Electronics
- Logic Level Shift

$V_{(BR)DSS}$	$R_{DS(on)}$MAX	I_D
20V	250mΩ@4.5V	1A
	300mΩ@2.5V	
	400mΩ@1.8V	

Absolute Maximum Ratings (TA=25°C unless otherwise specified)

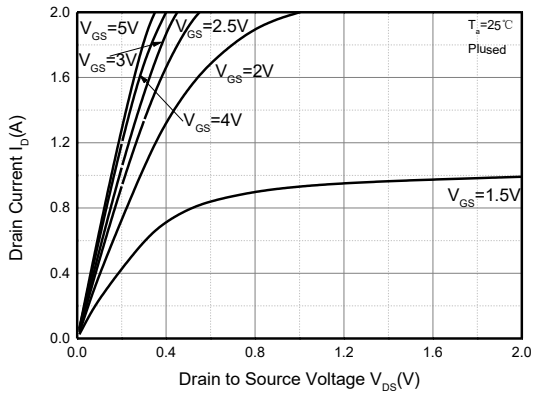
Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Typical Gate-Source Voltage	V_{GS}	±8	V
Continuous Drain Current (note 1)	I_D	0.8	A
Pulsed Drain Current (tp=10us)	I_{DM}	1.8	A
Power Dissipation (note 1)	P_D	100	mW
Thermal Resistance from Junction to Ambient (note 1)	$R_{\theta JA}$	1250	℃/W
Operation Junction and Storage Temperature Range	T_J,T_{STG}	-55~ 150	℃
Lead Temperature for Soldering Purposes(1/8'' from case for 10 s)	T_L	260	℃

Electrical Characteristics (TA=25°C unless otherwise specified)

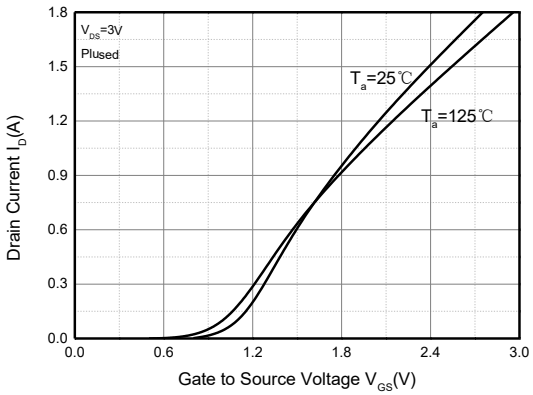
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	20			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =20V,V_{GS} = 0V			1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±10V, V_{DS} = 0V			±20	μA
Gate threshold voltage(2)	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	0.4	0.7	1.0	V
Drain-source on-resistance(2)	$R_{DS(on)}$	V_{GS} =4.5V, I_D =500mA		220	400	mΩ
		V_{GS} =2.5V, I_D =500mA		280	500	
Forward tranconductance	g_{FS}	V_{DS} =10V, I_D =150mA	150			mS
Dynamic characteristics(4)						
Input Capacitance	C_{iss}	V_{DS}=16V,V_{GS}=0V,f=1MHz		79	120	pF
Output Capacitance	C_{oss}			13	20	
Reverse Transfer Capacitance	C_{rss}			9	15	
Switching Characteristics(4)						
Turn-on delay time(3)	$t_{d(on)}$	V_{DS}=10V,I_D=500mA, V_{GS}=4.5V,R_G=10Ω		6.7		ns
Turn-on rise time(3)	t_r			4.8		
Turn-off delay time(3)	$t_{d(off)}$			17.3		
Turn-off fall time(3)	t_f			7.4		
Source-Drain Diode characteristics						
Diode Forward voltage(3)	V_{DS}	I_S=0.15A, V_{GS} = 0V			1.2	V

Typical Characteristics

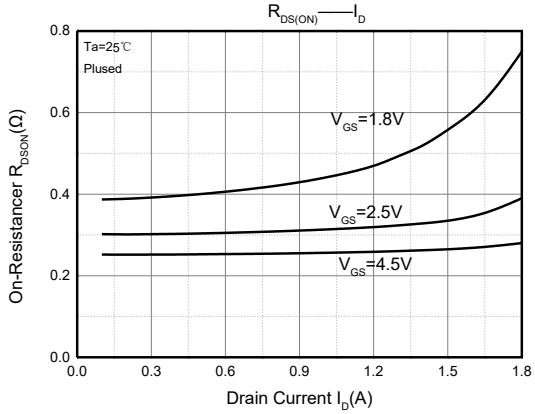
Output Characteristics



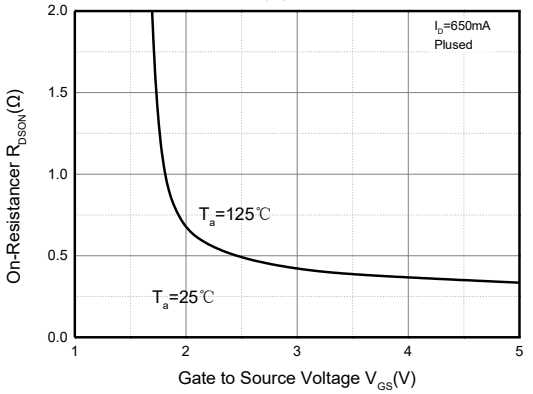
Transfer Characteristics



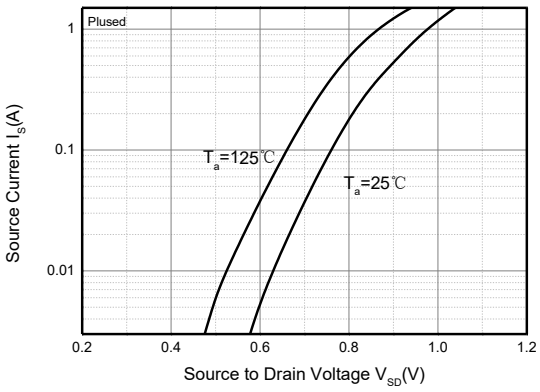
$R_{DS(ON)}$——I_D



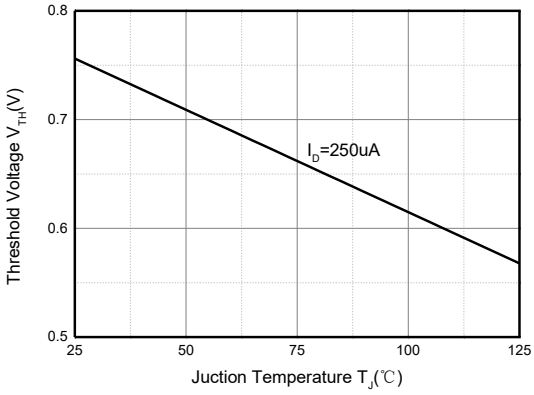
$R_{DS(ON)}$——V_{GS}



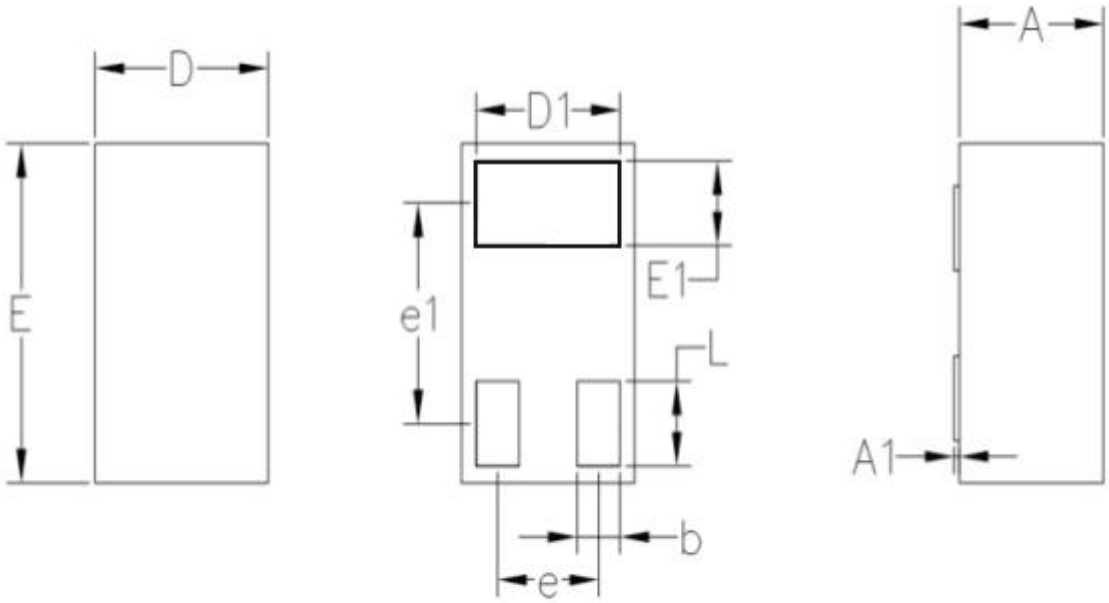
I_S——V_{SD}



Threshold Voltage



SOD-883 Package Outline Drawing



SYMBOL	DIMENSIONS IN MM		
	MIN	NOM	MAX
A	0.45	0.50	0.55
A1	0.00	–	0.05
D	0.55	0.60	0.65
E	0.95	1.00	1.05
D1	045	0.50	0.55
E1	0.20	0.25	0.30
L	0.20	0.25	0.30
b	0.10	0.15	0.20
e	0.35BSC		
e1	0.65BSC		