20V N-Channel MOSFET

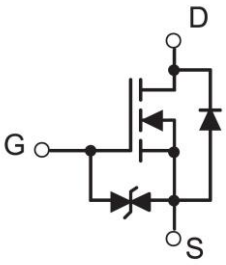
Description

The PME20N08U uses advanced Trench technology and designs to provide excellent $R_{DS(ON)}$ with low gate charge. This device is suitable for use in PWM, load switching and general purpose applications.

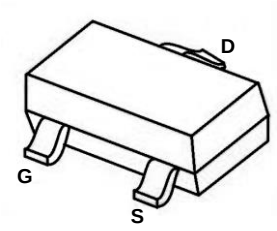
Features

- Surface Mount Package
- N-Channel Switch with Low $R_{DS(on)}$
- Operated at Low Logic Level Gate Drive
- ESD Protected: 2KV

Dimensions and Pin Configuration



Circuit diagram

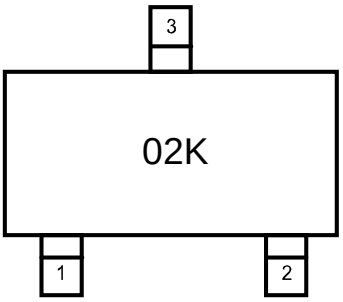


SOT-323

Applications

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

Marking Information



02K = Device Marking Code

MOSFET Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
20V	380mΩ @4.5V	0.75A
	450mΩ @2.5V	
	800mΩ @1.8V	

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±10	V
Continuous Drain Current	I_D	0.75	A
Pulsed Drain Current(1)	I_{DM}	0.18	A
Power Dissipation(2)	P_D	0.2	W
Thermal Resistance from Junction to Ambient(1)	$R_{\theta JA}$	625	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

Electrical Characteristics (T_A = 25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	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} =16V,V_{GS} = 0V			1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±8V, V_{DS} = 0V			±10	uA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	0.3	0.65	1	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} = 4.5V, I_D = 0.5A			0.38	Ω
		V_{GS} =2.5V, I_D = 0.5A			0.45	
		V_{GS} =1.8V, I_D = 0.5A			0.8	
Dynamic characteristics						
Input Capacitance	Ciss	V_{DS} =16V,V_{GS} =0V, f=1MHz		79	120	pF
Output Capacitance	Coss			13	20	
Reverse Transfer Capacitance	Crss			9	15	
Switching Characteristics						
Turn-on delay time	$t_{d(on)}$	V_{GS}=4.5V,V_{DS}=10V, I_D =500mA,R_{GEN}=10Ω		6.7		ns
Turn-on rise time	t_r			4.8		
Turn-off delay time	$t_{d(off)}$			17.3		
Turn-off fall time	t_f			7.4		
Source-Drain Diode characteristics						
Body Diode Voltage	V_{SD}	I_S=0.5A, V_{GS} = 0V		0.7	1.3	V

Notes:

（1）、Repetitive Rating: Pulse width limited by maximum junction temperature.

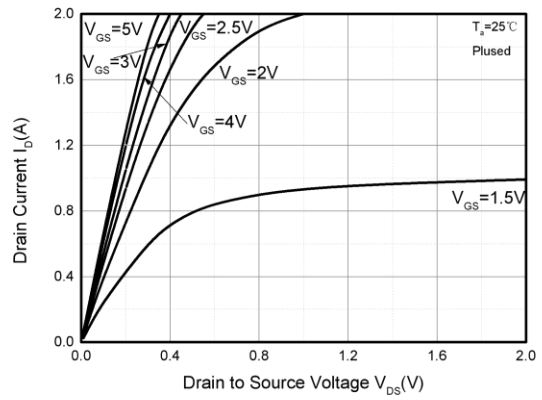
（2）、This test is performed with no heat sink at Ta=25℃.

（3）、Pulse Test : Pulse Width≤300μs, Duty Cycle≤0.5%.

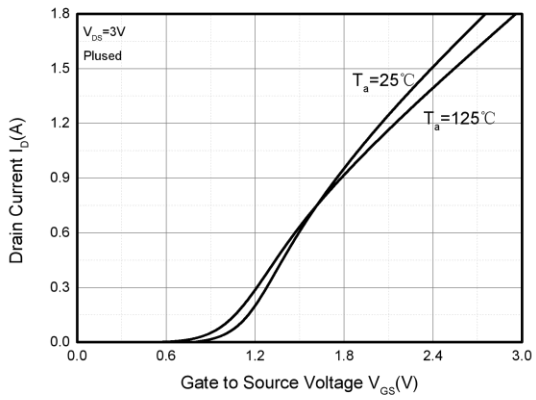
（4）、These parameters have no way to verify.

Typical Characteristics

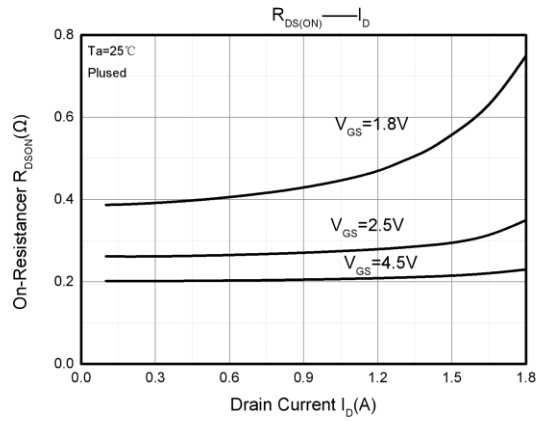
Output Characteristics



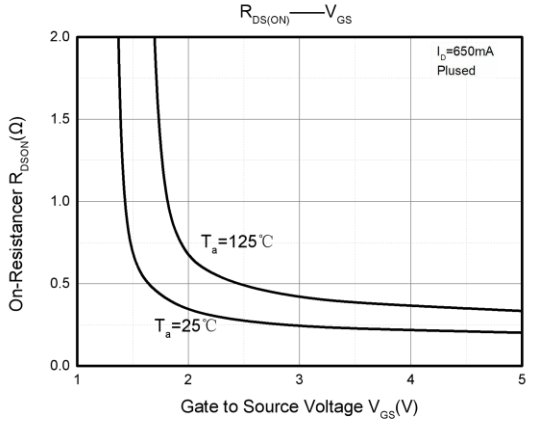
Transfer Characteristics



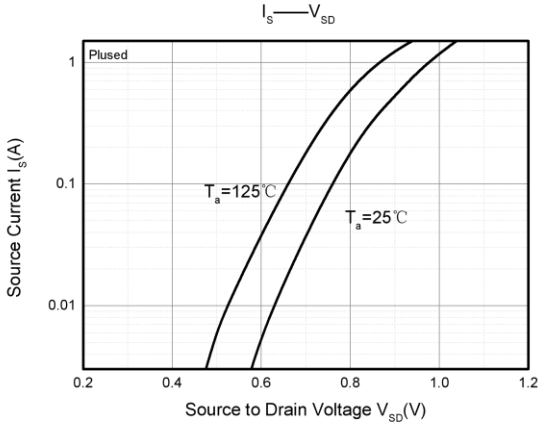
$R_{DS(ON)}$——I_D



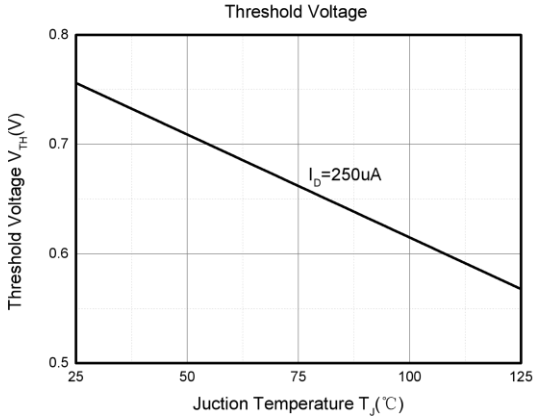
$R_{DS(ON)}$——V_{GS}



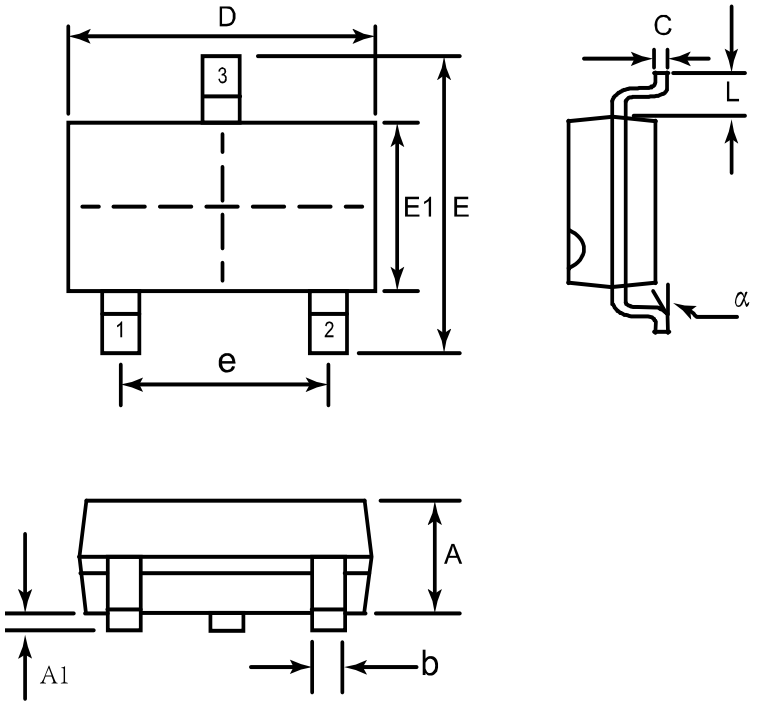
I_S——V_{SD}



Threshold Voltage



SOT-323 Package Outline Drawing



Symbol	Dimensions In Millimeters	
	Min.	Max.
A1	0.00	0.10
A	0.90	1.00
b	0.30	0.50
c	0.10	0.15
D	2.00	2.20
E1	1.15	1.35
E	2.15	2.40
e	1.20	1.40
L	0.525 REF.	
θ	0°	8°