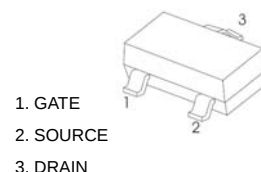


20V N-Channel MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
20 V	31.8mΩ@4.5V	5A
	35.6mΩ@2.5V	
	41.4mΩ@1.8V	

SOT-23



FEATURE

High power and current handing capability
Surface mount package
AEC-Q101 qualified (Automotive grade with suffix "Q".)
Expsemi electronics

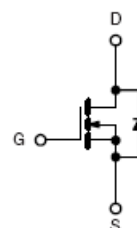
APPLICATION

- DC/DC Converters
- Load Switching for Portable Applications

MARKING



Equivalent Circuit



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}	±8.0	
Continuous Drain Current $t=5s$	I_D	5	A
Pulsed Drain Current	I_{DM}	20	
Continuous Source-Drain Diode Current	I_S	1.04	
Maximum Power Dissipation $t=5s$	P_D	0.35	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	357	$^{\circ}\text{C/W}$
Operation Junction and Storage Temperature Range	T_J, T_{stg}	-50 ~ +150	$^{\circ}\text{C}$

MOSFET ELECTRICAL CHARACTERISTICS

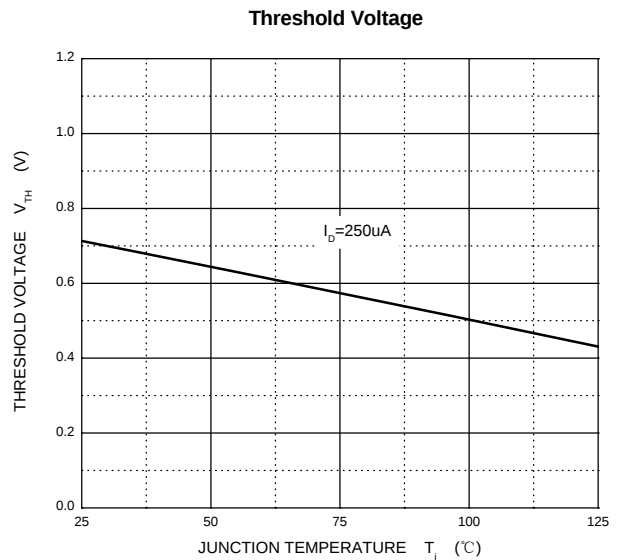
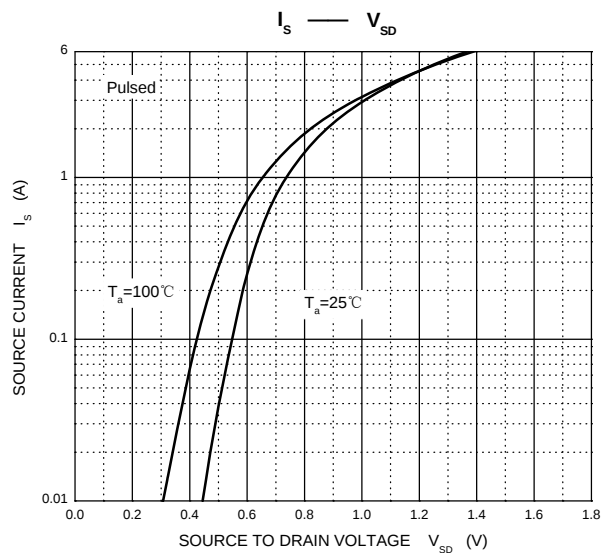
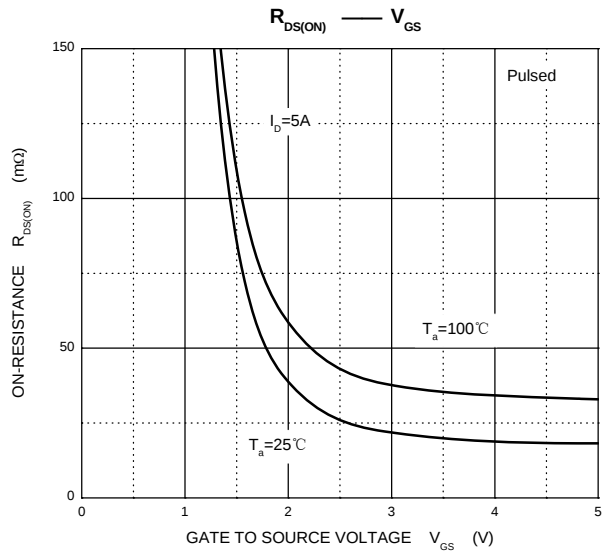
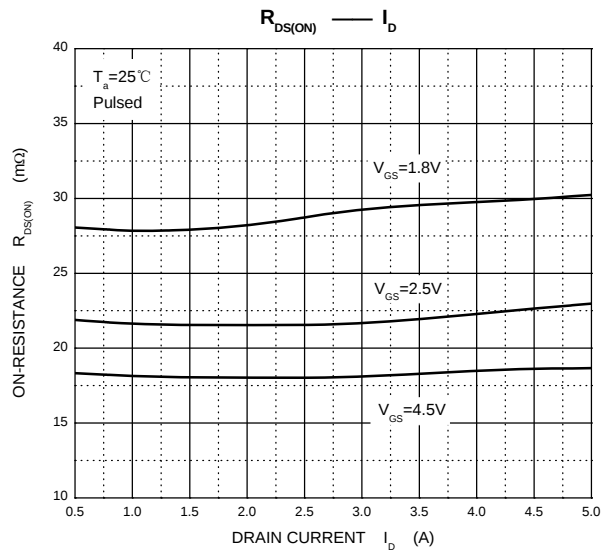
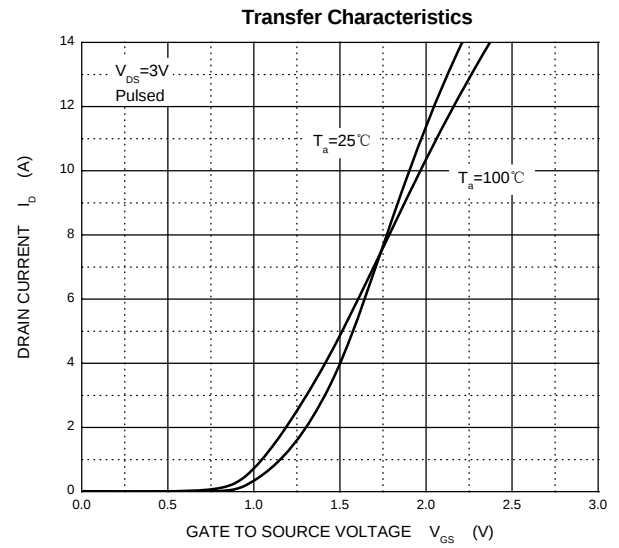
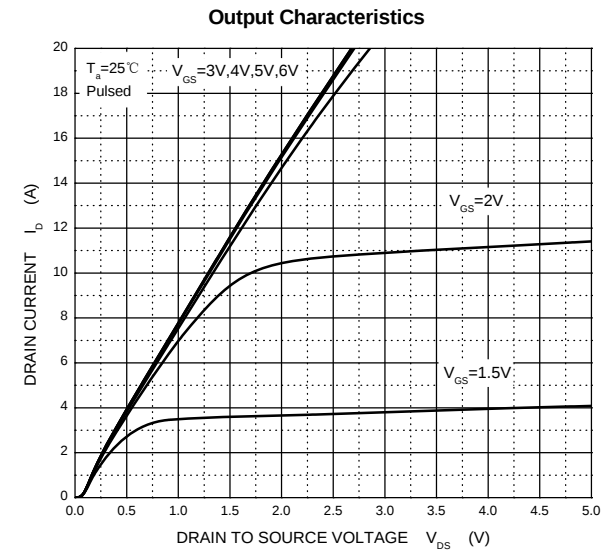
$T_a=25^{\circ}\text{C}$ unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Drain-source breakdown voltage	V _{(BR) DSS}	V _{GS} = 0V, I _D =250μA	20			V
Gate-source leakage	I _{GSS}	V _{DS} =0V, V _{GS} =±8V			±100	nA
Zero gate voltage drain current	I _{DSS}	V _{DS} =20V, V _{GS} =0V			1.0	μA
Gate-source threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.45	0.7	1.0	V
Drain-source on-state resistance ^a	R _{DS(on)}	V _{GS} =4.5V, I _D =5.0A		0.018	0.0318	Ω
		V _{GS} =2.5V, I _D =4.7A		0.023	0.0356	
		V _{GS} =1.8V, I _D =4.3A		0.030	0.0414	
Forward tranconductance ^a	g _{fs}	V _{DS} =10V, I _D =5.0A		6		S
Dynamic ^b						
Input capacitance	C _{iss}	V _{DS} =10V,V _{GS} =0V,f =1MHz		865		pF
Output capacitance	C _{oss}			105		
Reverse transfer capacitance	C _{rss}			55		
Gate resistance	R _g	f =1MHz	0.5		4.8	Ω
Turn-on delay Time	t _{d(on)}	V _{GEN} =5V,V _{DD} =10V, I _D =4A,R _G =1Ω, R _L =2.2Ω			10	ns
Rise time	t _r				20	
Turn-off Delay time	t _{d(off)}				32	
Fall yime	t _f				12	
Drain-source body diode characteristics						
Forward diode voltage	V _{SD}	V _{GS} =0V,I _S =4A		0.75	1.2	V

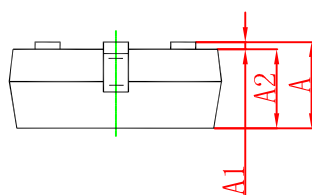
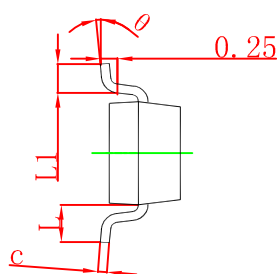
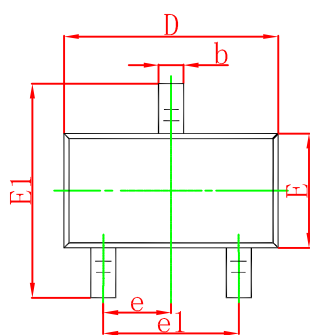
Notes :

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

Typical Characteristics

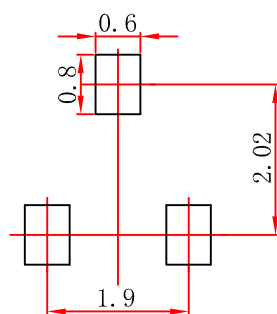


SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP		0.037 TYP	
e1	1.800	2.000	0.071	0.079
L	0.550 REF		0.022 REF	
L1	0.300	0.500	0.012	0.020
θ	0°	8°	0°	8°

SOT-23 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.