

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

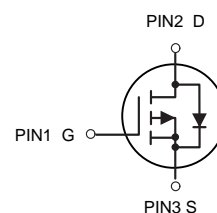
- $V_{DSS} = -20\text{ V}$ $I_D = -5.0\text{ A}$
- $R_{DS(on)} < 45\text{ m}\Omega @ V_{GS} = -4.5\text{ V}$
- $R_{DS(on)} < 60\text{ m}\Omega @ V_{GS} = -2.5\text{ V}$
- $R_{DS(on)} < 75\text{ m}\Omega @ V_{GS} = -1.8\text{ V}$

PIN2 D

PIN3 S

PIN1 G

SOT23



FEATURE

- Excellent $R_{DS(ON)}$, low gate charge, low gate voltages

APPLICATION

- Load switch and in PWM applications

Maximum ratings ($T_a = 25^\circ\text{C}$ unless otherwise noted)

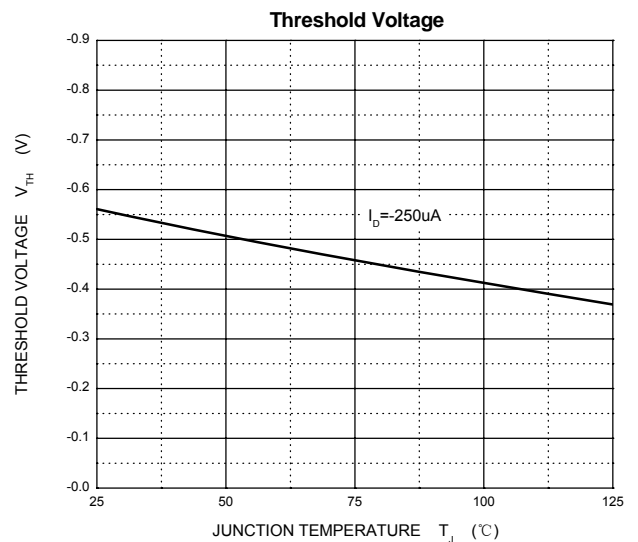
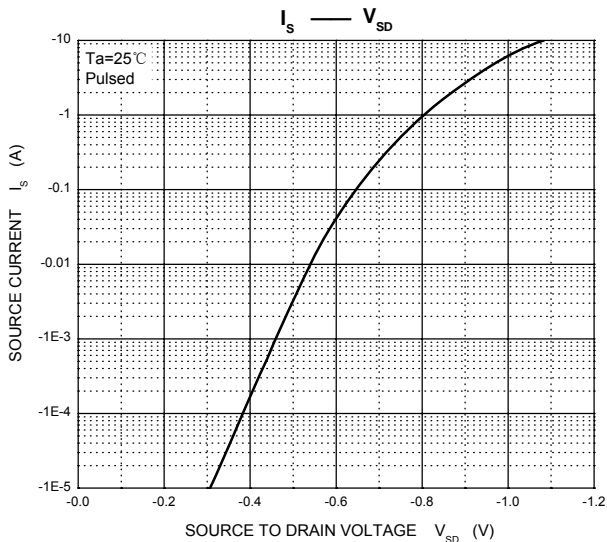
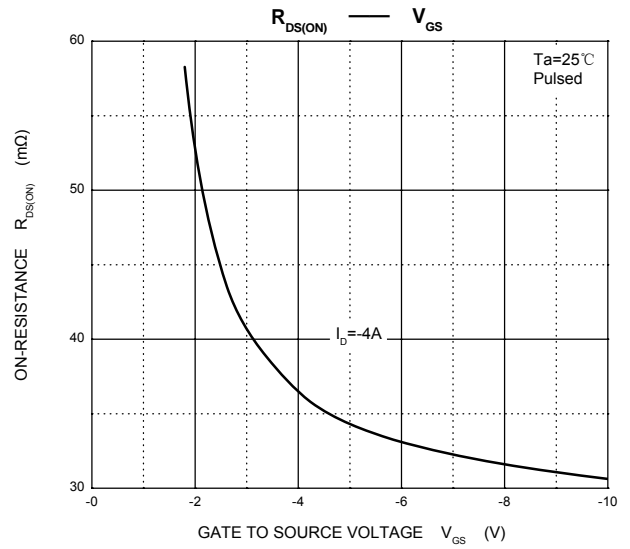
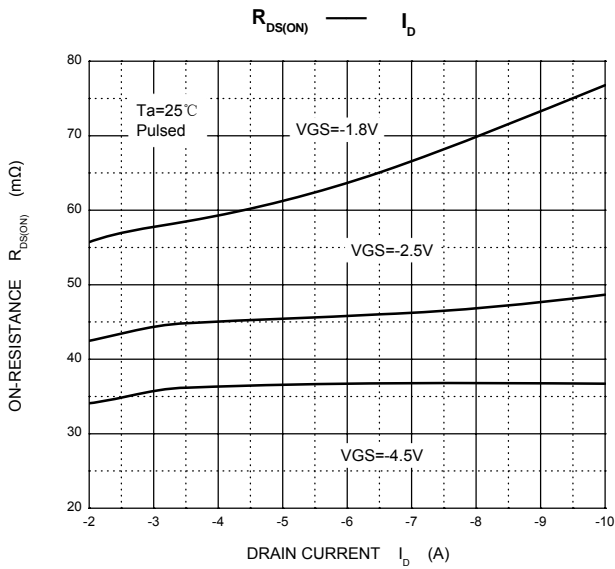
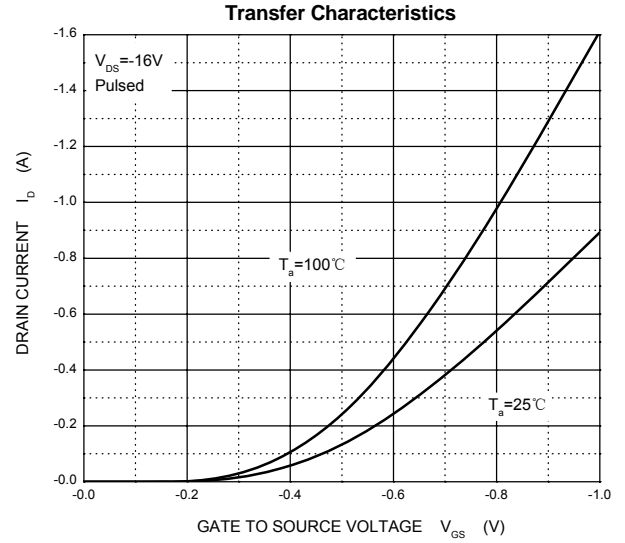
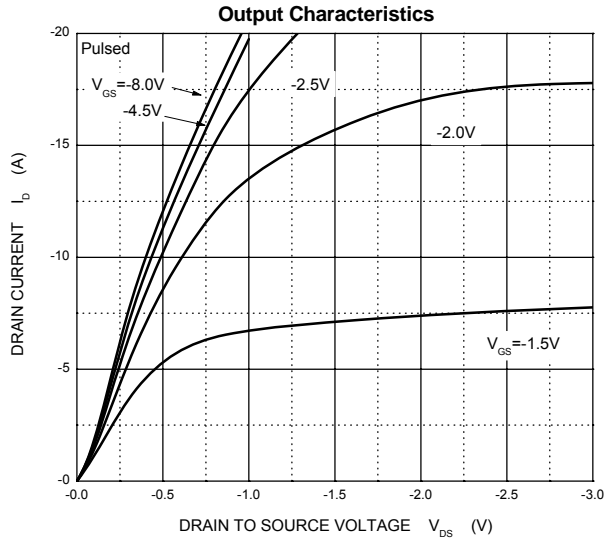
Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 8	
Continuous Drain Current ($t \leq 10\text{s}$)	I_D	-5.0	A
Maximum Power Dissipation ($t \leq 10\text{s}$)	P_D	0.35	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	357	$^\circ\text{C}/\text{W}$
Operating Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 ~ +150	$^\circ\text{C}$

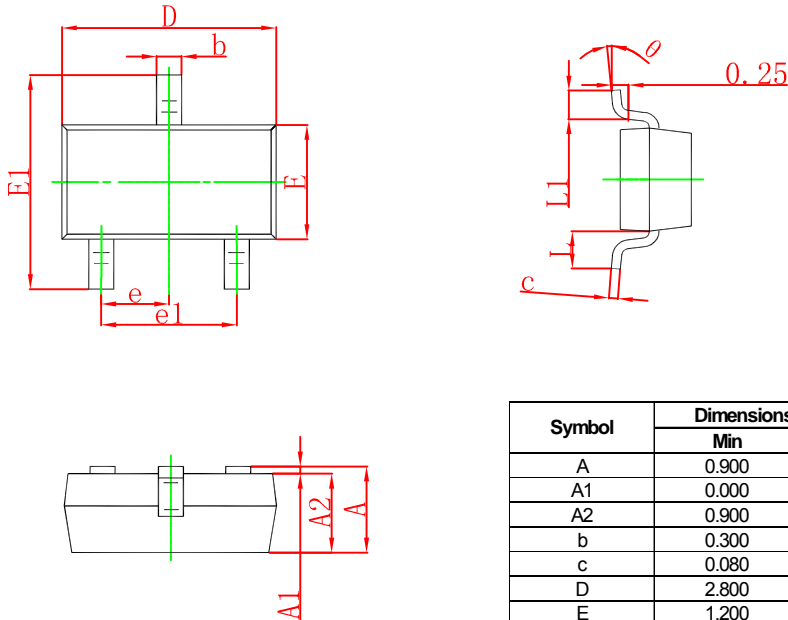
$T_a=25\text{ }^{\circ}\text{C}$ unless otherwise specified

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Static Parameters						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-20			V
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.3	-0.56	-1	
Gate-body leakage current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 8V$			± 10	μA
		$V_{DS} = 0V, V_{GS} = \pm 4.5V$			± 1	
Zero gate voltage drain current	I_{DSS}	$V_{DS} = -16V, V_{GS} = 0V$			-1	
Drain-source on-state resistance(note1)	$R_{DS(on)}$	$V_{GS} = -4.5V, I_D = -5A$		33	45	$m\Omega$
		$V_{GS} = -2.5V, I_D = -4A$		48	60	
		$V_{GS} = -1.8V, I_D = -2A$		62	75	
Forward transconductance(note2)	g_{FS}	$V_{DS} = -5V, I_D = -4A$	8			S
Body diode voltage(note2)	V_{SD}	$I_S = -1A, V_{GS} = 0V$			-1	V
Dynamic Parameters (note3)						
Input capacitance	C_{iss}	$V_{DS} = -10V, V_{GS} = 0V, f = 1MHz$		1450		pF
Output capacitance	C_{oss}			205		
Reverse transfer capacitance	C_{rss}			160		
Gate resistance	R_g	$V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$		6.5		Ω
Switching Parameters						
Total gate charge	Q_g	$V_{DS} = -10V, V_{GS} = -4.5V, I_D = -4A$		17.2		nC
Gate-Source charge	Q_{gs}			1.3		
Gate-drain charge	Q_{gd}			4.5		
Turn-on delay time (note3)	$t_{d(on)}$	$V_{DS} = -10V, V_{GS} = -4.5V$ $R_{GEN} = 3\Omega, R_L = 2.5\Omega,$		9.5		ns
Turn-on rise time(note3)	t_r			17		
Turn-off delay time(note3)	$t_{d(off)}$			94		
Turn-off fall time(note3)	t_f			35		

Notes:

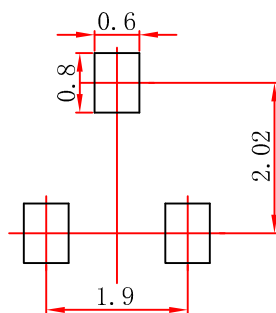
1. Repetitive rating, pulse width limited by junction temperature.
2. Pulse Test : Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
3. These parameters have no way to verify.





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: ± 0.05 mm.
3. The pad layout is for reference purposes only.