

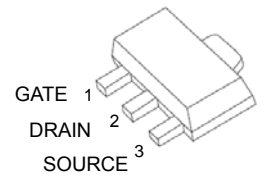
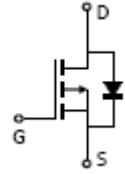


MT9451 P-Channel 20-V(D-S) MOSFET

Description

The Advanced Power MOSFETs provide the designer with the best combination of fast switching, ruggedized device design, ultra low on- resistance and cost-effectiveness.

Marking : A9451



SOT-89-3L

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

Parameter	Symbol	Value	Units
Drain-Source Voltage	V_{DS}	-20	V
Continuous Gate-Source Voltage	V_{GS}	± 12	
Continuous Drain Current	I_D	-2.3	A
Power Dissipation	P_D	0.5	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	250	$^{\circ}\text{C}/\text{W}$
Operating Temperature	T_j	150	$^{\circ}\text{C}$
Storage Temperature	T_{stg}	-55 ~+150	



Electrical characteristics (T_a=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 10μA	-20			V
Gate-body leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±12V			±100	nA
Zero gate voltage drain current	I _{DSS}	V _{DS} = -20V, V _{GS} = 0V			-1.0	μA
On characteristics						
Gate-threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -0.25mA	-0.50		-1.50	V
Static drain-source on-resistance (note 1)	R _{DS(on)}	V _{GS} = -4.5V, I _D = -2.3A			0.130	Ω
		V _{GS} = -2.5V, I _D = -1.0A			0.220	
Forward transconductance (note 1)	g _{fs}	V _{DS} = -5V, I _D = -2.3A	2.3			S
Dynamic characteristics (note 2)						
Input capacitance	C _{iss}	V _{DS} = -20V, V _{GS} = 0V, f = 1MHz			430	pF
Output capacitance	C _{oss}			100		
Reverse transfer capacitance	C _{riss}			35		
Switching characteristics						
Turn-on delay time (note 1,2)	t _{d(on)}	V _{GS} = -5V, V _{DS} = -10V, I _D = -1A, R _G = 3.3Ω, R _D = 10Ω		9		ns
Rise time (note 2)	t _r			25		
Turn-off delay time (note 2)	t _{d(off)}			20		
Fall time (note 2)	t _f			10		
Drain-source body diode characteristics						
Body diode forward voltage (note 1)	V _{SD}	I _S = -1A, V _{GS} = 0V			-1.6	V

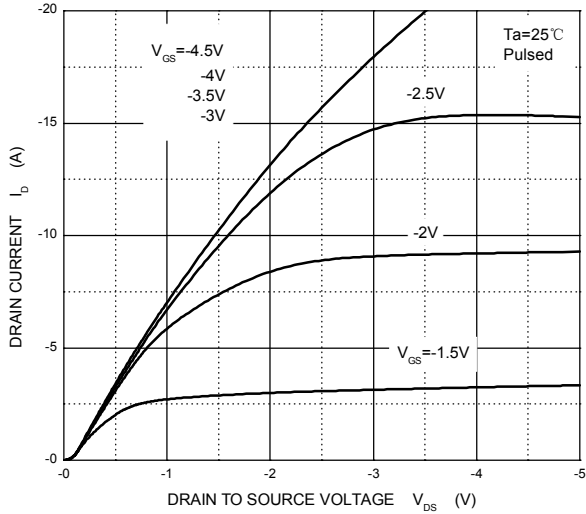
No tes:

1. Pulse Test ; Pulse Width ≤300μs, Duty Cycle ≤2%.
2. These parameters have no way to verify.

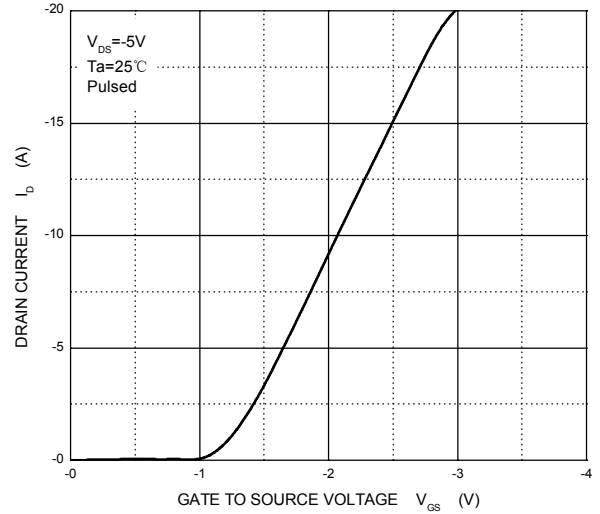


Typical Characteristics

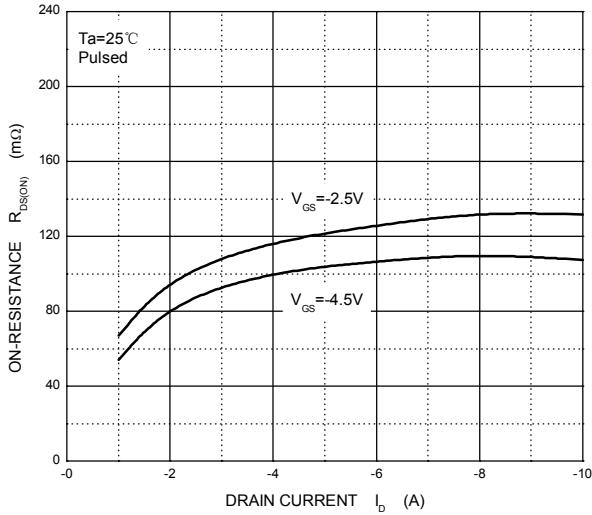
Output Characteristics



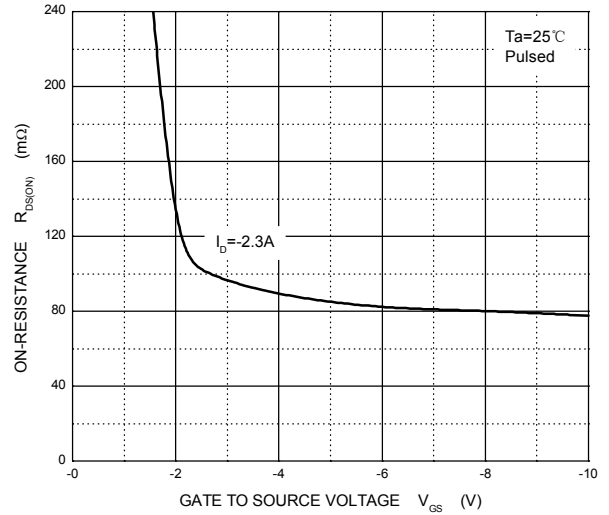
Transfer Characteristics



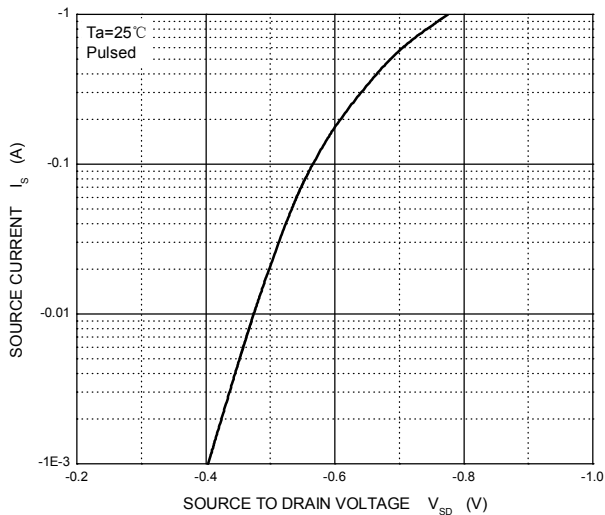
$R_{DS(ON)}$ — I_D



$R_{DS(ON)}$ — V_{GS}

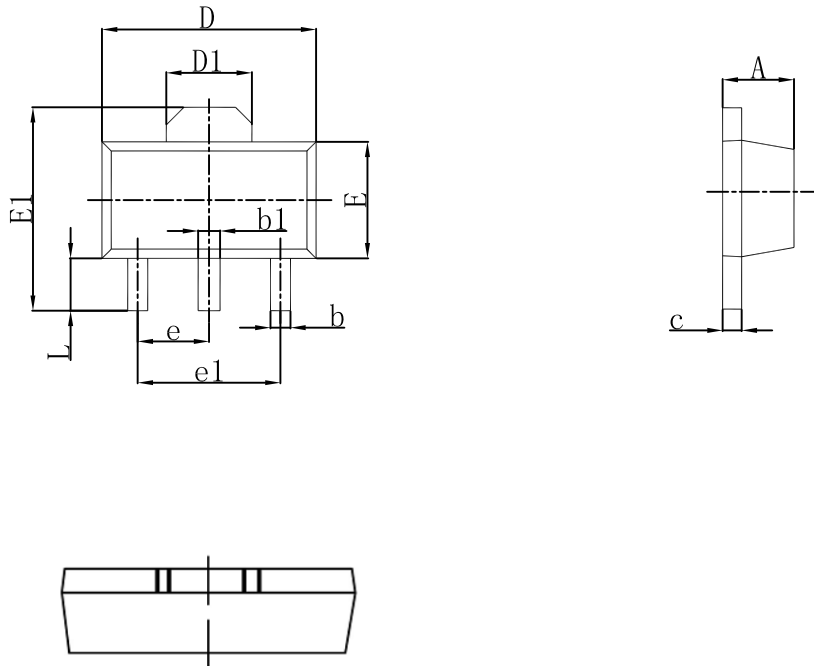


I_S — V_{SD}





SOT-89-3L Outlines Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF.		0.061 REF.	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP.		0.060 TYP.	
e1	3.000 TYP.		0.118 TYP.	
L	0.900	1.200	0.035	0.047