

Descriptions

This is -20V P-Channel MOSFET in a SOT-323 Plastic Package.

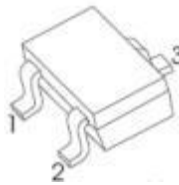
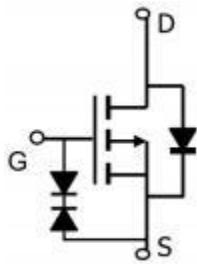
Features

- Surface Mount Package
- P-Channel Switch with Low RDS(on)
- Operated at Low Logic Level Gate Drive

Applications

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

Equivalent Circuit & Pinning



SOT-323

Equivalent

Circuit1. GATE 2. SOURCE 3. DRAIN

Absolute Maximum Ratings(Ta=25°C)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current	I_D	-0.66	A
Pulsed Drain Current ⁽¹⁾	I_{DM}	-2.64	A
Power Dissipation ⁽²⁾	P_D	200	mW
Thermal Resistance from Junction to Ambient ⁽¹⁾	$R_{\theta JA}$	625	°C/W
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-55~ +150	°C

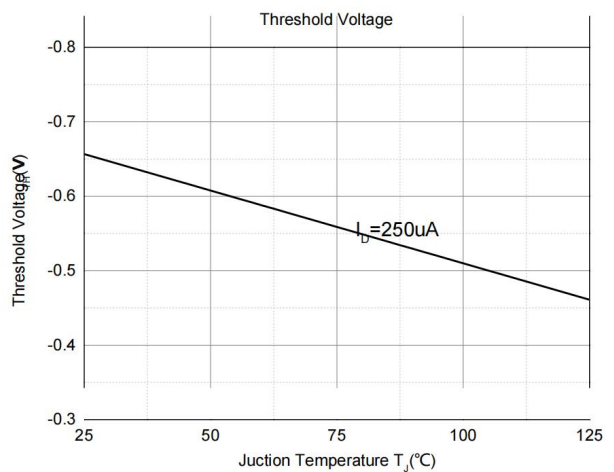
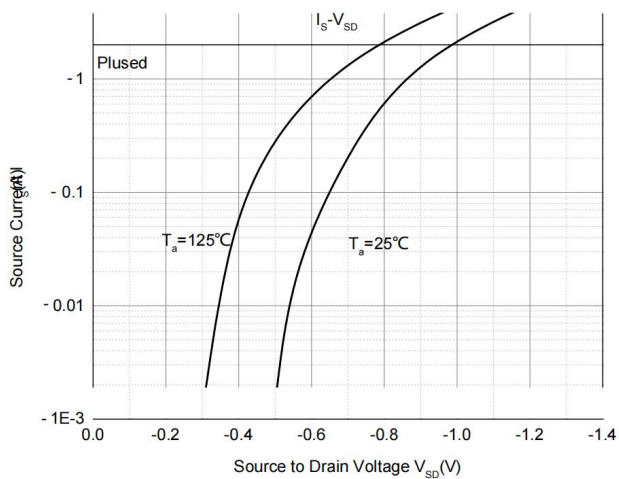
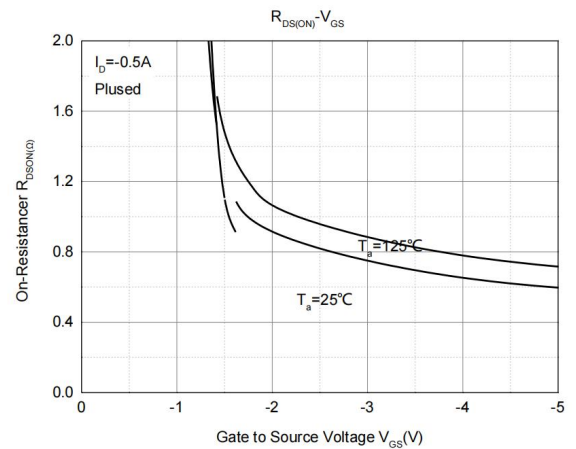
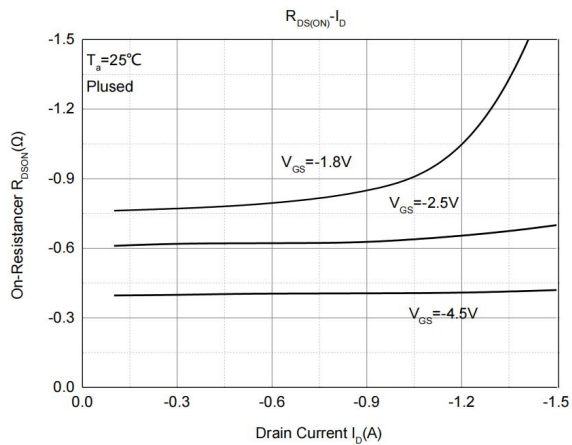
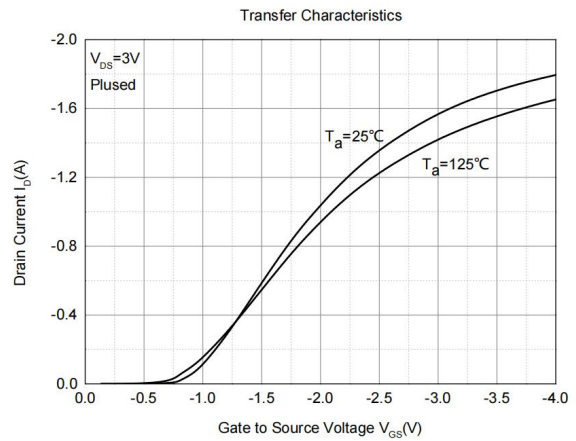
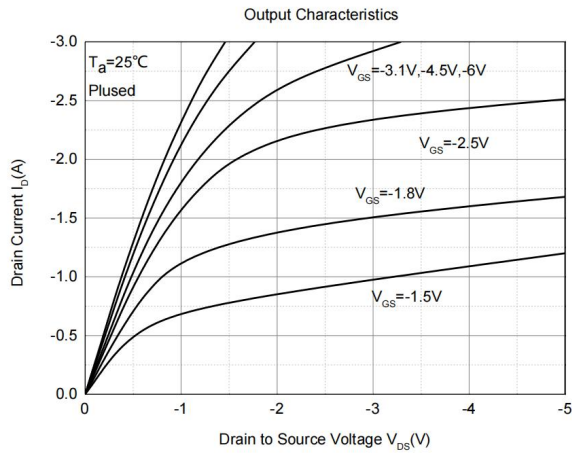
Electrical Characteristics(Ta=25°C)

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 ⁽³⁾	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-0.35	-0.45	-1.1	V
Drain-source on-resistance ⁽³⁾	R _{DS(on)}	V _{GS} =-4.5V, I _D =-0.5A		440	570	mΩ
		V _{GS} =-2.5V, I _D =-0.3A		620	830	
		V _{GS} =-1.8V, I _D =-0.12A		810	1100	
Forward tranconductance	g _{FS}	V _{DS} =-10V, I _D =-0.50A	0.8			S
Dynamic characteristics ⁽⁴⁾						
Input Capacitance	C _{iss}	V _{DS} =-16V,V _{GS} =0V,f =1MHz			175	pF
Output Capacitance	C _{oss}				25	
Reverse Transfer Capacitance	C _{rss}				15	
Switching Characteristics ⁽⁴⁾						
Turn-on delay time	t _{d(on)}	V _{DS} =-10V,I _D =-200mA, V _{GS} =-4.5V,R _G =10Ω		9		ns
Turn-on rise time	t _r			5.7		
Turn-off delay time	t _{d(off)}			32.6		
Turn-off fall time	t _f			20.3		
Source-Drain Diode characteristics						
Diode forward voltage ⁽³⁾	V _{DS}	I _S =-0.5A, V _{GS} = 0V			-1.2	V

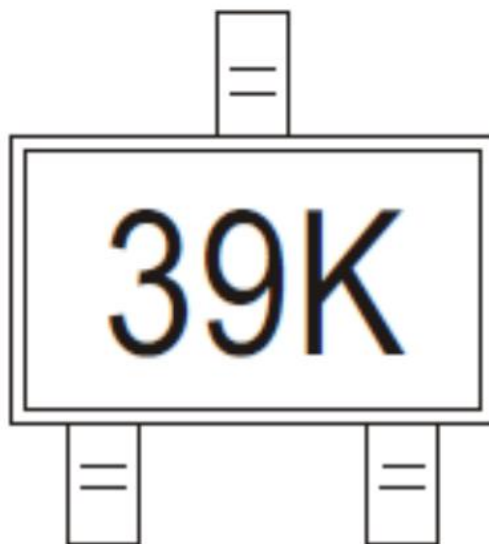
Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. This test is performed with no heat sink at Ta=25°C .
3. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 0.5\%$.
4. These parameters have no way to verify.

Electrical Characteristic Curve

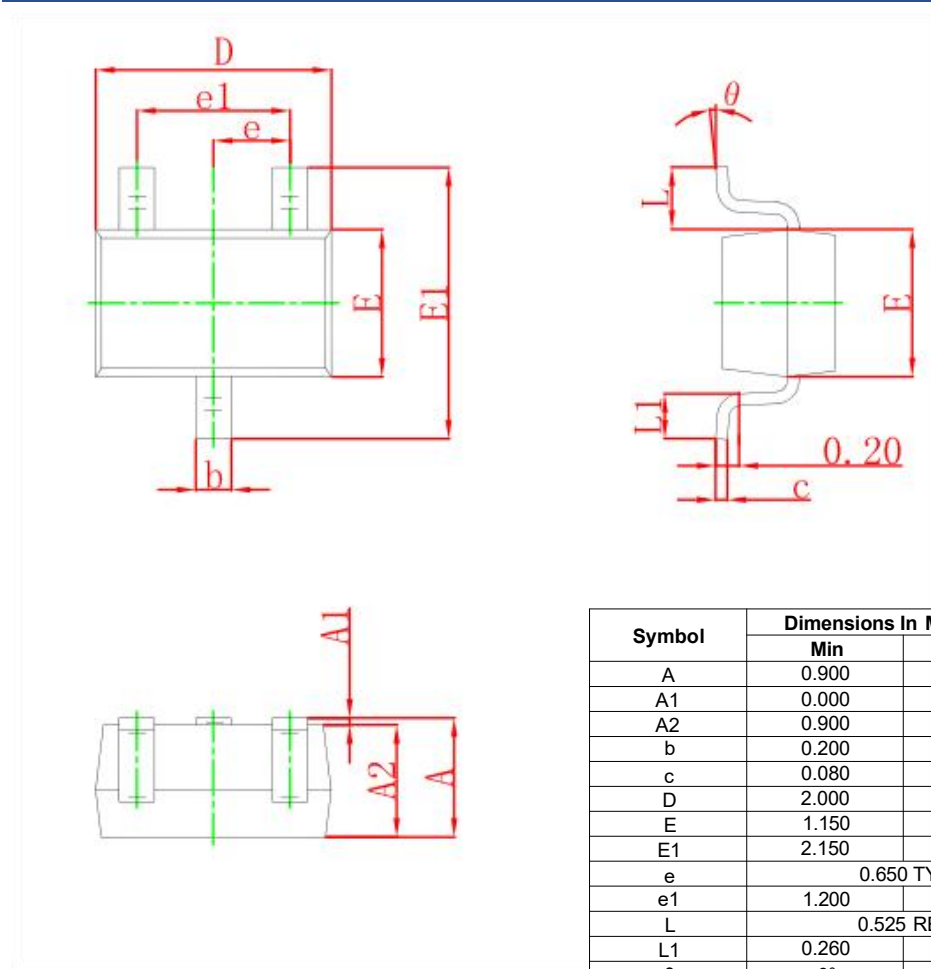


Marking Instructions



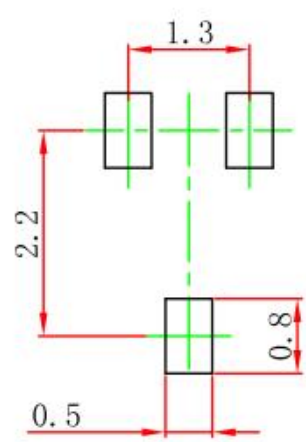
Note:
39K: Product Type.

Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.200	0.400	0.008	0.016
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

SOT-323 Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:±0.05mm.
3.The pad layout is for reference purposes only.