

Applications

- Power Supply
- DC-DC Converters
- Power Tool

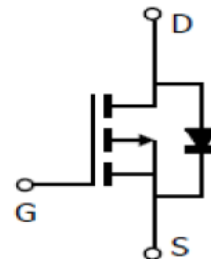
Features

- $V_{DS}=-20V / V_{GS}=\pm 12V / I_D=4.5A$
- $R_{DS(ON)}=65m\Omega(max.)@V_{GS}=-10V$
 $R_{DS(ON)}=80m\Omega(max.)@V_{GS}=-4.5V$
 $R_{DS(ON)}=125m\Omega(max.)@V_{GS}=-2.5V$
- Reliable and Rugged
- Avalanche Rated
- Advanced Trench Process Technology
- High Density Cell Design for Ultra Low
- On-Resistance

Pin Description



Top View of SOT-23-3



Absolute Maximum Ratings ($T_A=25^\circ C$ unless otherwise noted)

Parameter	Symbol	Maximum	Units
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current ^A	I_D	$T_A=25^\circ C$	-4.5
		$T_A=70^\circ C$	-3
Pulsed Drain Current ^B	I_{DM}	-15	A
Power Dissipation ^A	P_D	$T_A=25^\circ C$	1.2
		$T_A=70^\circ C$	0.8
Junction-to-Ambient ^A	Steady-State	$R_{\theta JA}$	175
Junction and Storage Temperature	T_J, T_{STG}	-55 to 150	$^\circ C/W$ $^\circ C$

Electrical Characteristics (TA=25°C unless otherwise noted)						
Symbol	Parameter	Test Conditions	Min.	Typ	Max.	Unit
Static Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250uA	-20			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-16V, V _{GS} =0V			1	uA
		T _J =85°C			30	
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D =-250uA	-0.45	-0.65	-1	V
BV _{GSO}	Gate-Source Breakdown Voltage	V _{DS} =0V, I _G =±250uA	±12			V
I _{GSS}	Gate Leakage Current	V _{DS} =0V, V _{GS} =±12V			100	nA
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =-10V, I _D =-4.2A		52	65	mΩ
		V _{GS} =-4.5V, I _D =-3A		68	80	
		V _{GS} =-2.5V, I _D =-1A		105	125	
V _{SD}	Diode Forward Voltage	I _{SD} =-1A, V _{GS} =0V			-1.3	V
I _S	Maximum Body-Diode Continuous Current				-1.5	A
Dynamic Parameters						
C _{iss}	Input Capacitance	V _{GS} =0V, V _{DS} =-10V, f=1MHz		670		pF
C _{oss}	Output Capacitance			62		pF
C _{rss}	Reverse Transfer Capacitance			48		pF
R _G	Gate Resistance	V _{GS} =0V, V _{DS} =0V, f=1MHz		6		Ω
Switching Parameters						
Q _g	Total Gate Charge	I _D =-4A, V _{DS} =-10V, V _{GS} =-4.5V		12		nC
Q _{gs}	Gate Source Charge			2.1		nC
Q _{gd}	Gate Drain Charge			2.3		nC
t _{D(on)}	Turn-On DelayTime	V _{GS} =-4.5V, V _{DD} =-10V, R _G =6Ω		35		ns
t _r	Turn-On Rise Time			22		ns
t _{D(off)}	Turn-Off DelayTime			33		ns
t _f	Turn-Off Fall Time			15		ns
t _{rr}	Body Diode Reverse Recovery Time	I _F =-4A, dI/dt=100A/μs		13		ns
Q _{rr}	Body Diode Reverse Recovery Charge	I _F =-4A, dI/dt=100A/μs		6		nC

A: The value of R_{θJA} is measured in a still air environment with T_A =25°C. The value in any given application depends on the user's specific board design.

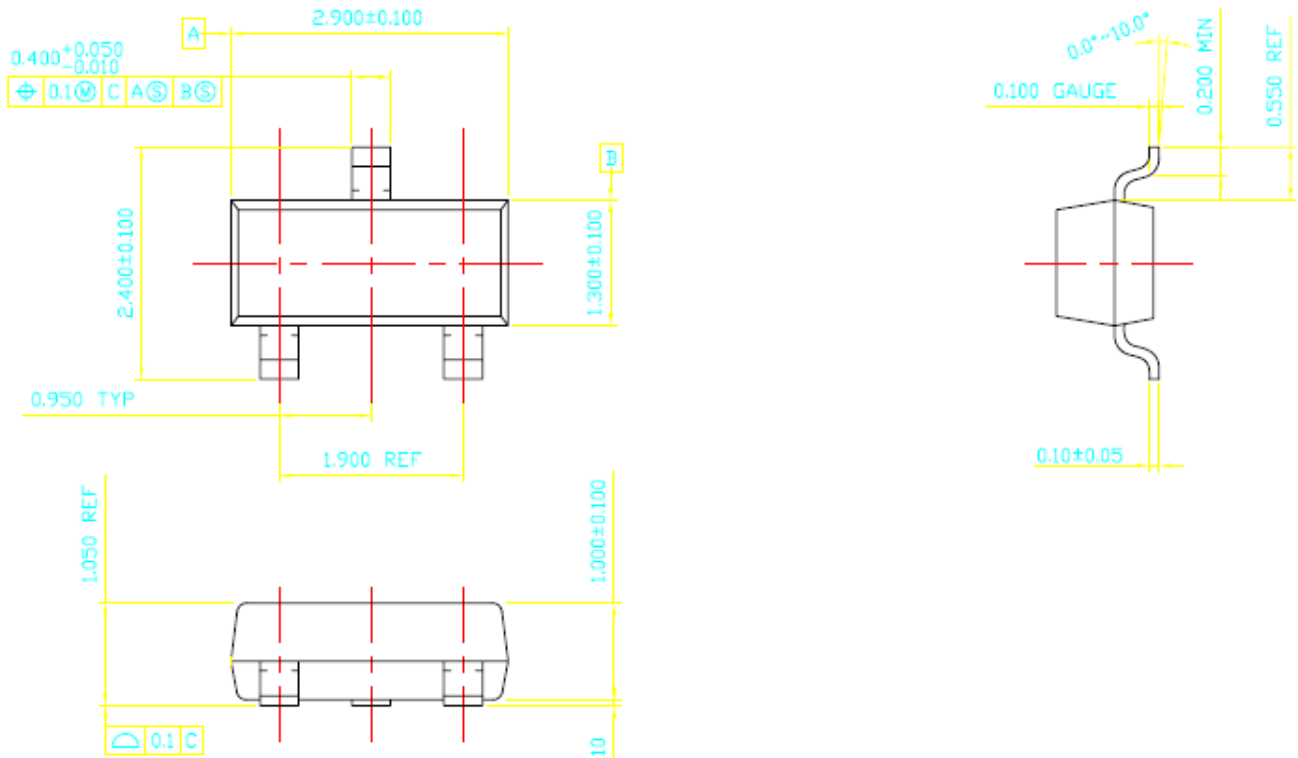
B: Repetitive rating, pulse width limited by junction temperature.

C: Pulse test: pulse width ≤ 300us, duty cycle ≤ 2%.

D: Guaranteed by design, not subject to production testing.

Package Outline Dimensions in Millimeters

SOT23



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