

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
60V	1.6Ω@10V	0.5A
	2.0Ω@4.5V	

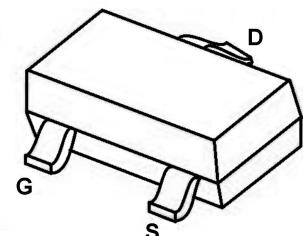
Feature

- Advanced trench technology
- Excellent $R_{DS(ON)}$
- Low gate charge
- ESD protected

Application

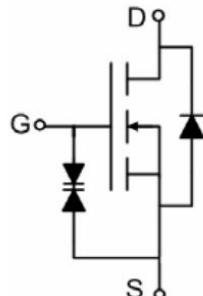
- Load Switch
- Uninterruptible power supply

Package

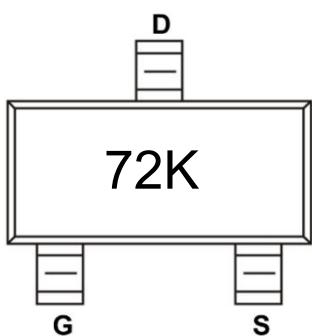


SOT-323

Circuit diagram



Marking



Absolute maximum ratings (T_c=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	60	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current ¹⁾ (V _{GS} =10V)	I _D	0.5	A
Continuous Drain Current ¹⁾ (V _{GS} =10V, T _c =100°C)	I _D (100°C)	0.13	A
Pulsed Drain Current ²⁾	I _{DM}	1.5	A
Single Pulse Avalanche Energy ³⁾	E _{AS}	1	mJ
Power Dissipation ⁴⁾	P _D	0.35	W
Thermal Resistance from Junction to Case ¹⁾	R _{θJC}	15	°C/W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{STG}	-55 ~ +150	°C

Electrical characteristics (T_J=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static characteristics						
Drain-Source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	60			V
Zero Gate voltage drain current	I _{DSS}	V _{DS} =60V, V _{GS} =0V			1	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V			±10	μA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.0	1.3	2.0	V
Drain-Source on-resistance	R _{DS(on)}	V _{GS} =10V, I _D =0.3A		1.1	1.6	Ω
		V _{GS} =4.5V, I _D =0.2A		1.3	2.0	
Dynamic characteristics⁵⁾						
Input capacitance	C _{iss}	V _{DS} =30V, V _{GS} =0V, f =1MHz		25		pF
Output capacitance	C _{oss}			5.6		
Reverse transfer capacitance	C _{rss}			2.2		
Total Gate Charge	Q _g	V _{DS} =30V, V _{GS} =4.5V, I _D =0.3A		0.61		nC
Gate-Source Charge	Q _{gs}			0.27		
Gate-Drain Charge	Q _{gd}			0.23		
Turn-on delay time	t _{d(on)}	V _{DD} =30V, V _{GS} =10V, I _D =0.3A, R _G =3Ω		4.3		nS
Turn-on rise time	t _r			2.4		
Turn-off delay time	t _{d(off)}			21		
Turn-off fall time	t _f			14.5		
Source-Drain Diode characteristics						
Diode forward current	I _s				0.5	A
Diode forward voltage	V _{SD}	V _{GS} =0V, I _s =0.3A			1.5	V

Notes:

- 1) The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
- 2) The data tested by pulsed , pulse width≤300us , duty cycle≤2%.
- 3) The power dissipation is limited by 150°C junction temperature.
- 4) The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.
- 5) Guaranteed by design, not subject to production testing.

Typical Characteristics

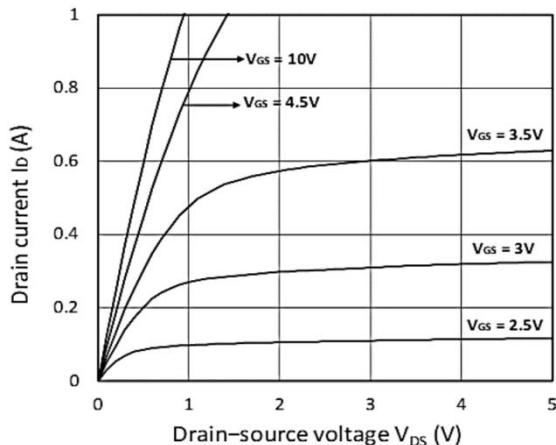


Figure 1. Output Characteristics

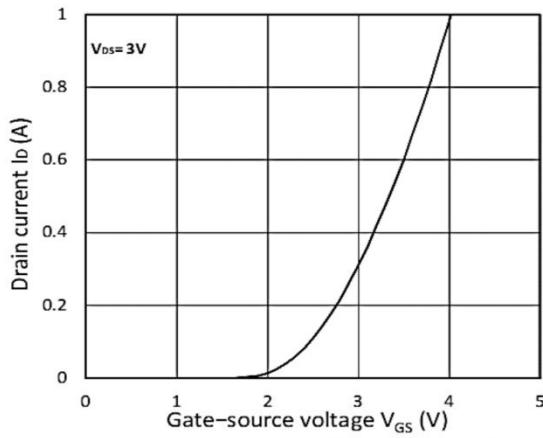


Figure 2. Transfer Characteristics

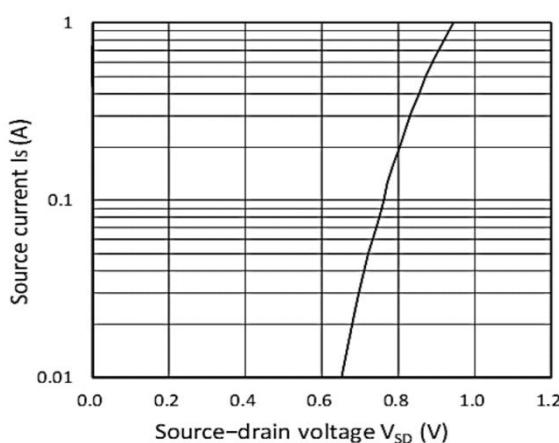


Figure 3. Forward Characteristics of Reverse

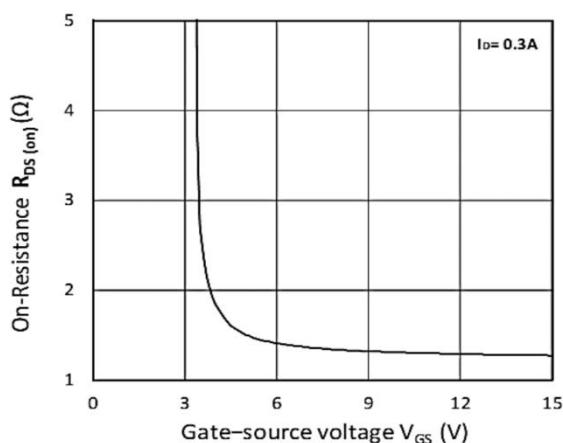


Figure 4. RDS(ON) vs. VGS

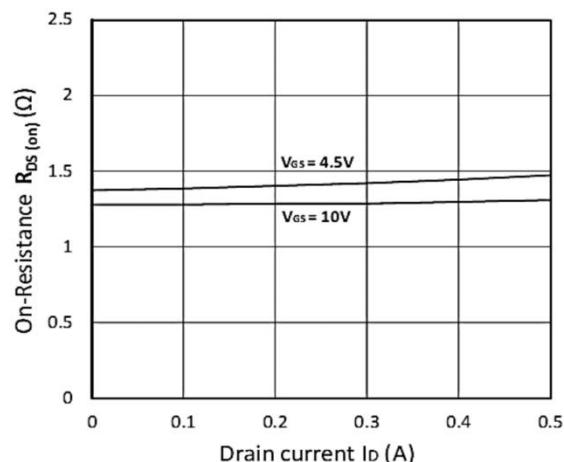


Figure 5. RDS(ON) vs. ID

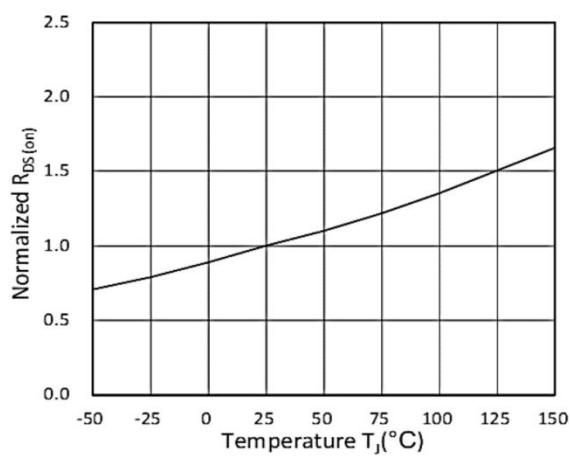


Figure 6. Normalized RDS(on) vs. Temperature

Typical Characteristics

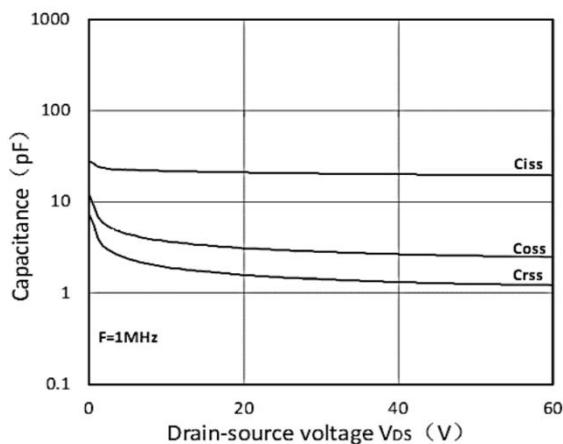


Figure 7. Capacitance Characteristics

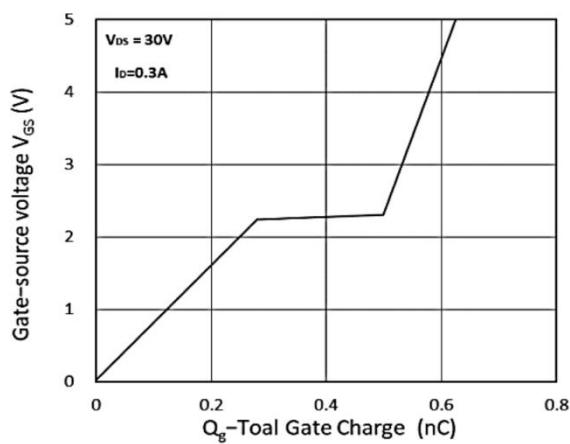


Figure 8. Gate Charge Characteristics

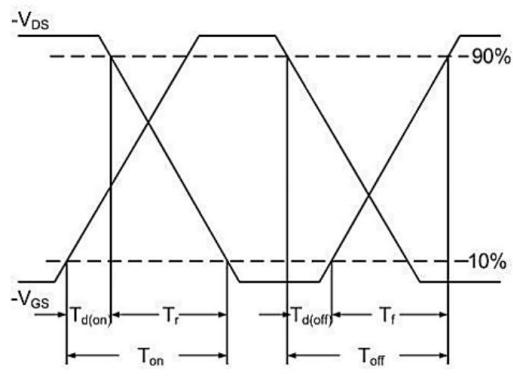


Figure 9 Switching Time Waveform

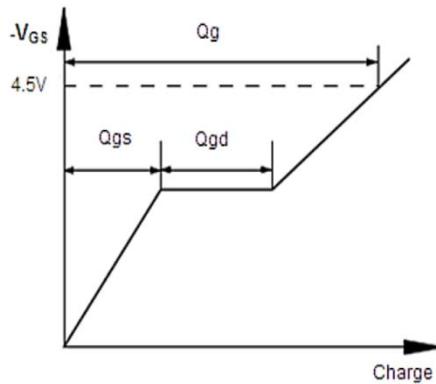
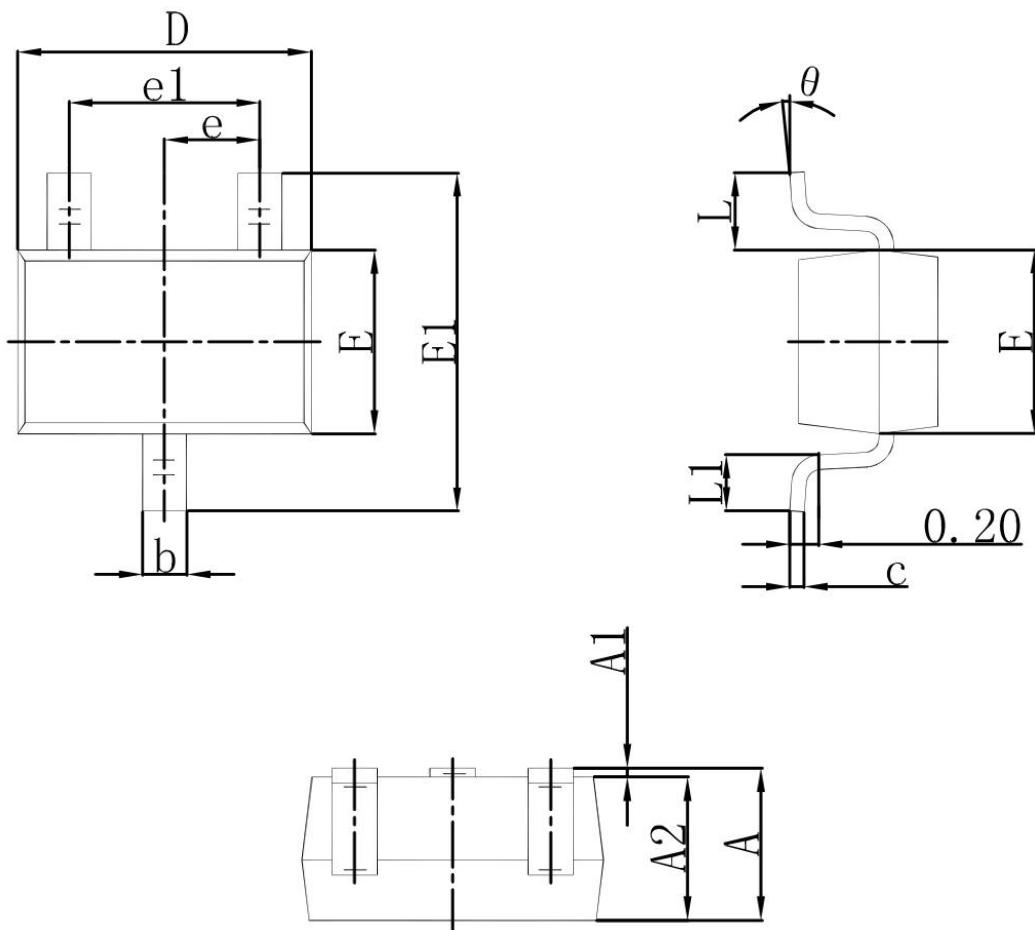


Figure 10 Gate Charge Waveform

SOT-323 Package Information



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	0.150	0.400	0.006	0.016
c	0.100	0.250	0.004	0.010
D	1.800	2.200	0.071	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	0.250	0.460	0.010	0.018
θ	0°	8°	0°	8°