AQ0D2N50S

N-Channel Enhancement Mode MOSFET

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
500V	28Ω@10V	0.2A

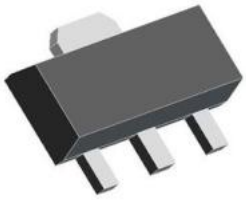
Feature

- Trench Power MV MOSFET Technology
- Excellent Package For Heat Dissipation

Application

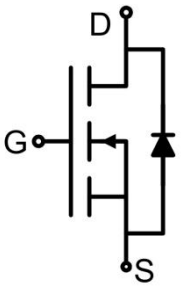
- Load Switch For Portable Devices
- Voltage Controlled Small Signal Switch

Package

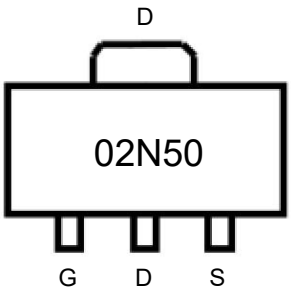


SOT-89

Circuit diagram



Marking



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Absolute maximum ratings (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	500	V
Gate-Source Voltage	V_{GS}	±30	V
Continuous Drain Current[1)]	I_D	0.2	A
Pulsed Drain Current[2)]	I_{DM}	0.8	A
Power Dissipation[1)]	P_D	1.56	W
Thermal Resistance from Junction to Ambient[1)]	$R_{\theta JA}$	83	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55 ~ +150	℃

Electrical characteristics (Ta=25℃ 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	500			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =500V,V_{GS} = 0V			1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±30V, V_{DS} = 0V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	2.0	3.0	4.0	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =10V, I_D =0.1A		22	28	Ω
Dynamic characteristics[3)]						
Input Capacitance	C_{iss}	V_{DS}=25V,V_{GS}=10V,f =0.1MHz		51		pF
Output Capacitance	C_{oss}			6.3		
Reverse Transfer Capacitance	C_{rss}			4.6		
Total Gate Charge	Q_g	V_{DS} =450V,V_{GS} =10V,I_D =0.1A		2.2		nC
Gate-Source Charge	Q_{gs}			0.2		
Gate-Drain Charge	Q_{gd}			0.6		
Turn-on delay time	$t_{d(on)}$	V_{GS}=10V,V_{DD}=300V, R_G=25Ω,I_D=0.1A		33		nS
Turn-on rise time	t_r			51		
Turn-off delay time	$t_{d(off)}$			46		
Turn-off fall time	t_f			43		
Source-Drain Diode characteristics						
Diode Forward Current	I_S				0.2	A
Diode Forward voltage	V_{SD}	V_{GS} =0V, I_S=0.1A			1.2	V
Reverse Recovery Time	trr	I_S =0.2A, di/dt=100A/μs		98		nS
Reverse Recovery Charge	Qrr			255		nC

Notes:

1) For a device surface mounted on 25mm x 25mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.

2) Repetitive rating 25mm x 25mm FR4 PCB, D=0.02, pulse width 300μs - pulse width limited by maximum junction temperature.

3) Guaranteed by design, not subject to production testing.

Typical Characteristics

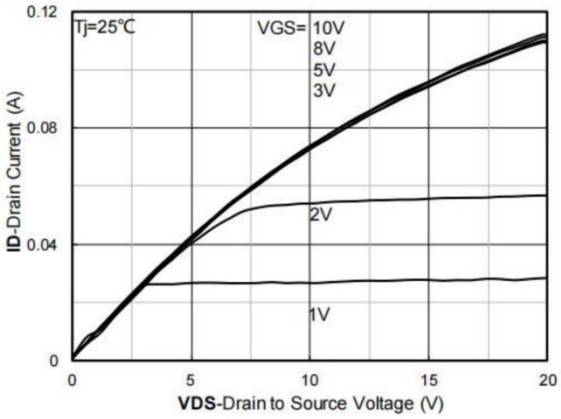


Figure 1. Output Characteristics

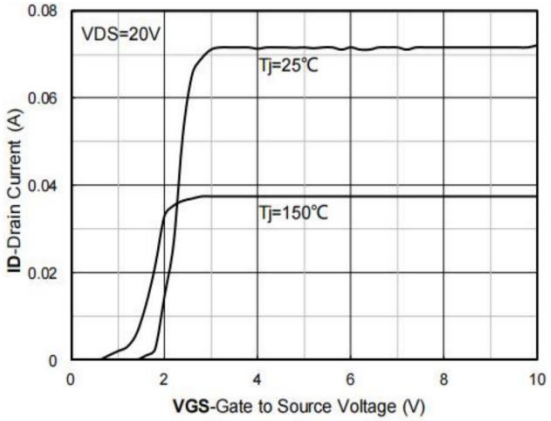


Figure 2. Transfer Characteristics

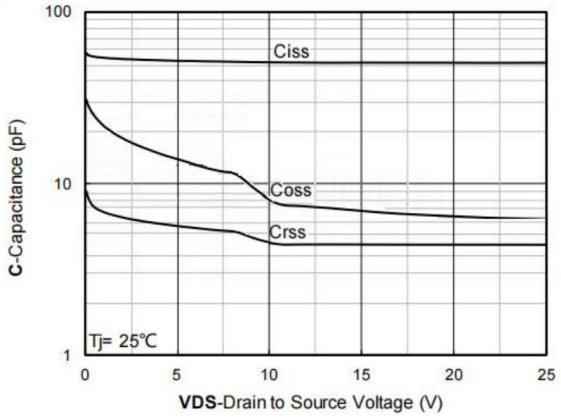


Figure 3. Capacitance Characteristics

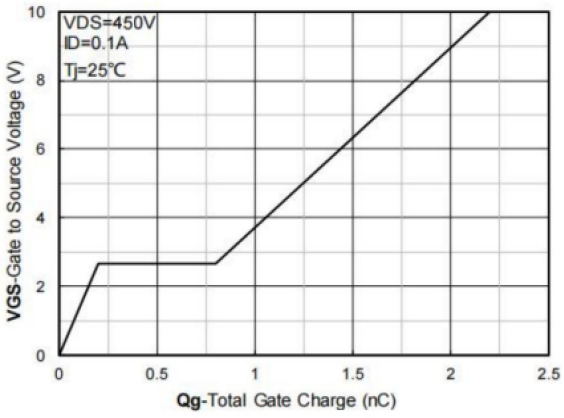


Figure 4. Gate Charge

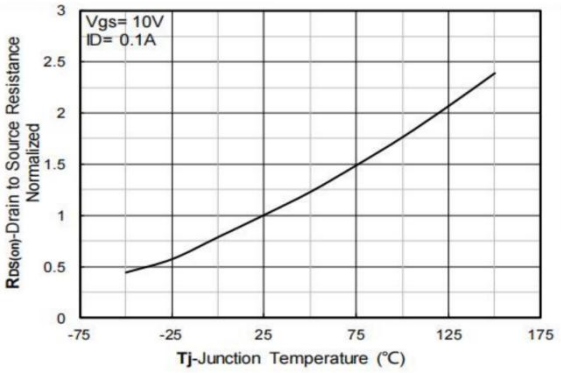


Figure 5. Normalized On-Resistance

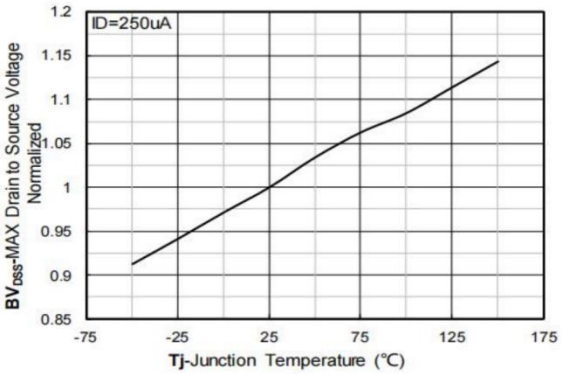
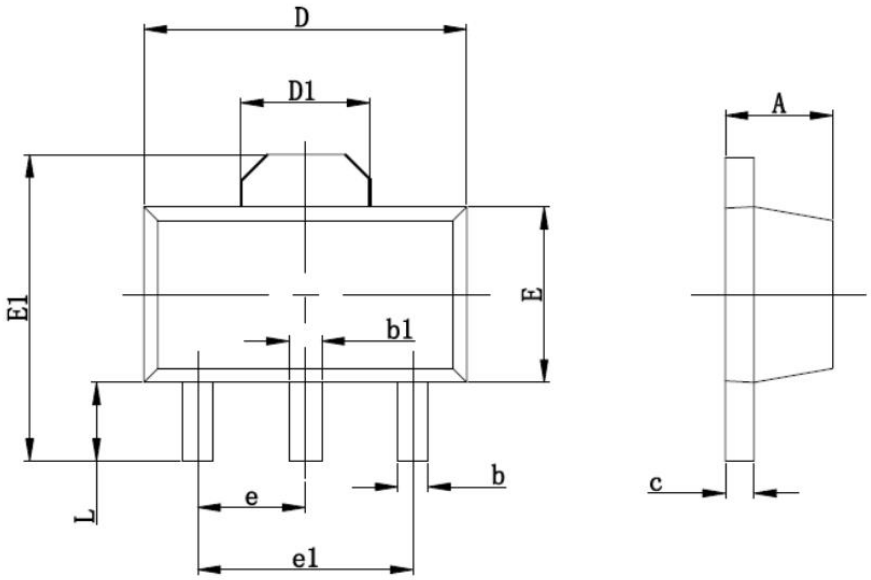


Figure 6. Normalized breakdown voltage

SOT-89 Package Information



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	4.300	4.700	0.169	0.185
D1	1.700 REF.		0.067 REF.	
E	2.250	2.650	0.089	0.104
E1	3.910	4.350	0.154	0.171
e	1.500 TYP.		0.060 TYP.	
e1	3.000 TYP.		0.118 TYP.	
L	0.800	1.200	0.031	0.047