

## Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	$I_D$
20V	18mΩ@4.5V	6.8A
	22mΩ@2.5V	
	39mΩ@1.8V	

## Feature

- Advanced trench process technology
- High density cell design for ultra low on-resistance

## Application

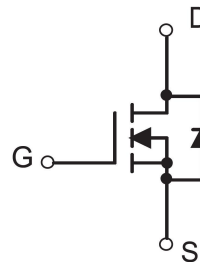
- Load Switch for Portable Devices
- DC/DC Converter

## Package

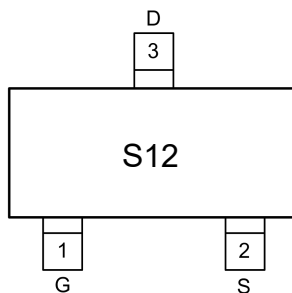


SOT-23

## Circuit diagram



## Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V <sub>DS</sub>	20	V
Gate-Source Voltage	V <sub>GS</sub>	±10	V
Continuous Drain Current	I <sub>D</sub>	6.8	A
Pulsed Drain Current	I <sub>DM</sub>	27	A
Power Dissipation	P <sub>D</sub>	1.2	W
Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature	T <sub>STG</sub>	-55 ~ +150	°C

### Electrical characteristics (T<sub>A</sub>=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	20			V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> = 20V, V <sub>GS</sub> = 0V			1	μA
Gate-body leakage current	I <sub>GSS</sub>	V <sub>GS</sub> = ±10V, V <sub>DS</sub> = 0V			±100	nA
Gate threshold voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	0.45		1.0	V
Drain-source on-resistance <sup>1)</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 6.8A			18	mΩ
		V <sub>GS</sub> = 2.5V, I <sub>D</sub> = 3.0A			22	
		V <sub>GS</sub> = 1.8V, I <sub>D</sub> = 2.5A			39	
<b>Dynamic characteristics<sup>2)</sup></b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 10V, V <sub>GS</sub> = 0V, f = 1MHz		900		pF
Output Capacitance	C <sub>oss</sub>			165		
Reverse Transfer Capacitance	C <sub>rss</sub>			75		
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = 10V, V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 6.8A		9.2		nC
Gate-Source Charge	Q <sub>gs</sub>			1.7		
Gate-Drain Charge	Q <sub>gd</sub>			2.9		
Turn-on delay time	t <sub>d(on)</sub>	V <sub>DD</sub> = 10V, V <sub>GS</sub> = 4.5V, R <sub>GEN</sub> = 3Ω, R <sub>L</sub> = 1.5Ω		12		nS
Turn-on rise time	t <sub>r</sub>			52		
Turn-off delay time	t <sub>d(off)</sub>			17		
Turn-off fall time	t <sub>f</sub>			10		
<b>Source-Drain Diode characteristics</b>						
Diode Forward Current <sup>1)</sup>	I <sub>S</sub>				6.8	A
Diode Forward voltage	V <sub>DS</sub>	V <sub>GS</sub> = 0V, I <sub>S</sub> = 6.8A			1.2	V

Notes:

- 1) Pulse Test: Pulse Width < 300μs, Duty Cycle ≤ 2%.
- 2) Guaranteed by design, not subject to production testing.

## Typical Characteristics

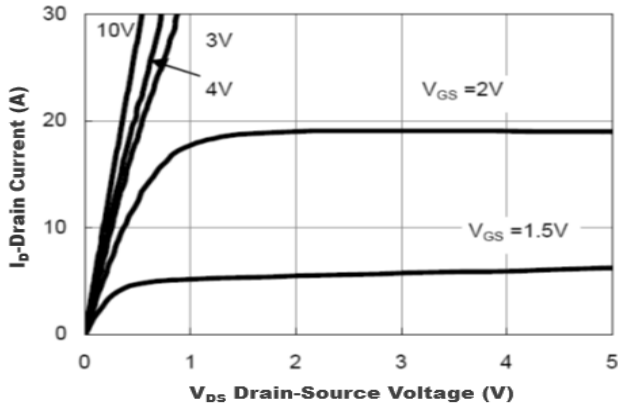


Figure1. Output Characteristics

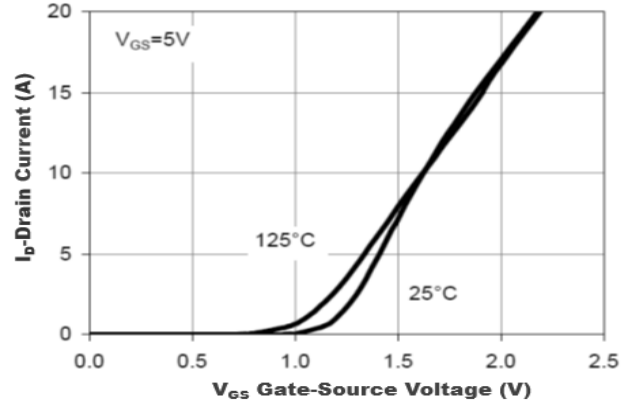


Figure2. Transfer Characteristics

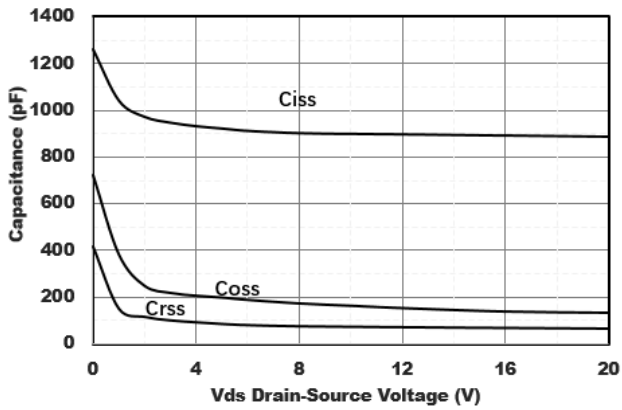


Figure3. Capacitance Characteristics

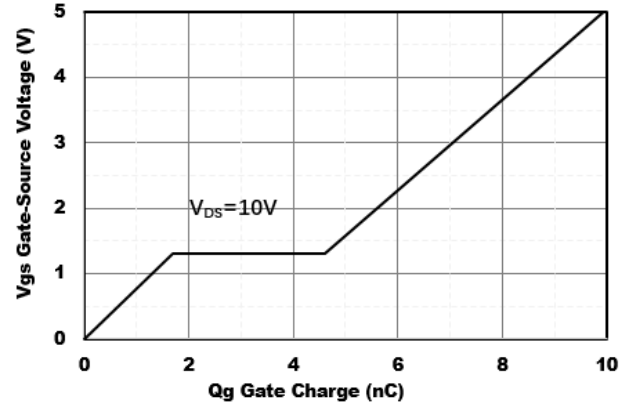


Figure4. Gate Charge

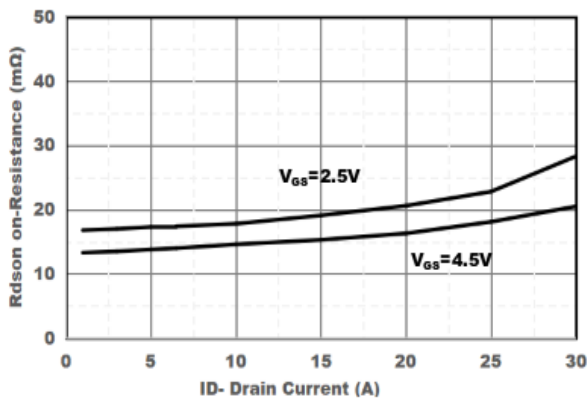


Figure5. Drain-Source on Resistance

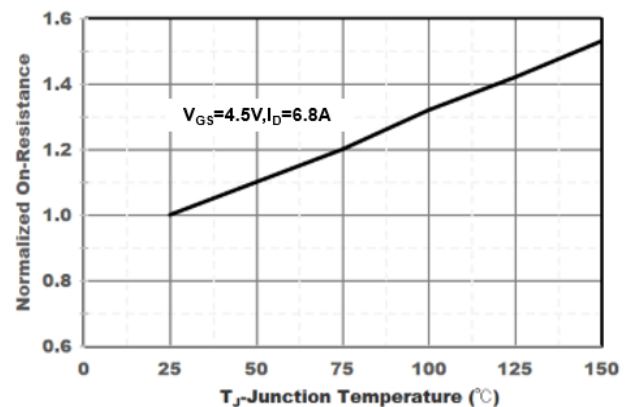
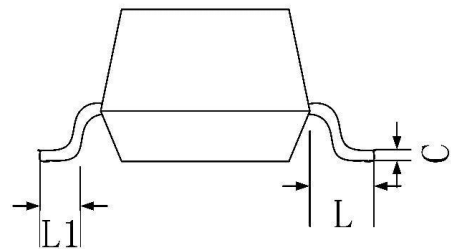
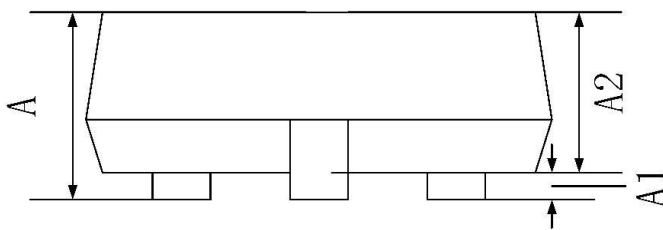
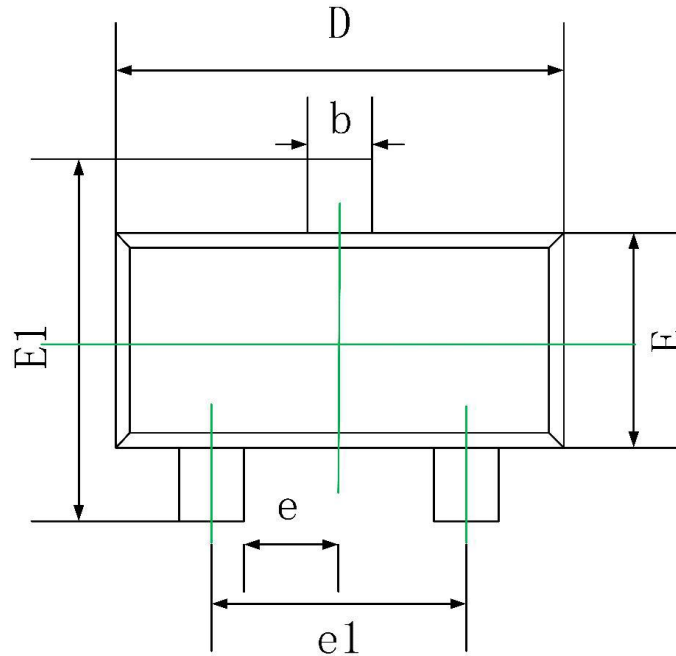


Figure6. Drain-Source on Resistance

## SOT-23 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.080	0.150	0.003	0.006
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950 TYP.		0.037 TYP.	
e1	1.800	2.000	0.071	0.079
L	0.550 REF.		0.022 REF.	
L1	0.300	0.500	0.012	0.020

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