

### Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	$I_D$
20V	25mΩ@4.5V	4.5A
	32mΩ@2.5V	
	49mΩ@1.8V	

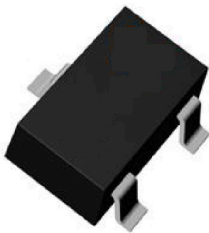
### Feature

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

### Application

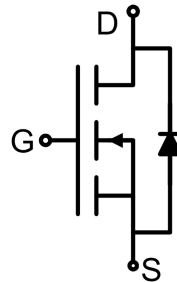
- Load Switch for Portable Devices
- DC/DC Converter

### Package

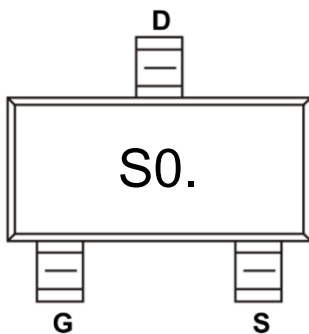


SOT-23

### Circuit diagram



### Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	20	V
Gate-Source Voltage	$V_{GS}$	±10	V
Continuous Drain Current	$I_D$	4.5	A
Pulsed Drain Current	$I_{DM}$	18	A
Power Dissipation	$P_D$	1.0	W
Junction Temperature	$T_J$	150	°C
Storage Temperature	$T_{STG}$	-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	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	20			V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = 20V, V_{GS} = 0V$			1	μA
Gate-body leakage current	$I_{GSS}$	$V_{GS} = \pm 10V, V_{DS} = 0V$			±100	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.45		1.0	V
Drain-source on-resistance <sup>1)</sup>	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 4.5A$			25	mΩ
		$V_{GS} = 2.5V, I_D = 3.0A$			32	
		$V_{GS} = 1.8V, I_D = 2.7A$			49	
<b>Dynamic characteristics<sup>2)</sup></b>						
Input Capacitance	$C_{iss}$	$V_{DS} = 10V, V_{GS} = 0V, f = 1MHz$		620		pF
Output Capacitance	$C_{oss}$			114		
Reverse Transfer Capacitance	$C_{rss}$			64		
Total Gate Charge	$Q_g$	$V_{DS} = 10V, V_{GS} = 4.5V, I_D = 4.5A$		7.1		nC
Gate-Source Charge	$Q_{gs}$			1.4		
Gate-Drain Charge	$Q_{gd}$			1.9		
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 10V, V_{GS} = 4.5V, R_{GEN} = 3\Omega, R_L = 1.5\Omega$		13		nS
Turn-on rise time	$t_r$			54		
Turn-off delay time	$t_{d(off)}$			18		
Turn-off fall time	$t_f$			11		
<b>Source-Drain Diode characteristics</b>						
Diode Forward Current <sup>1)</sup>	$I_S$				4.5	A
Diode Forward voltage	$V_{DS}$	$V_{GS} = 0V, I_S = 4.5A$			1.2	V

Notes:

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

## Typical Characteristics

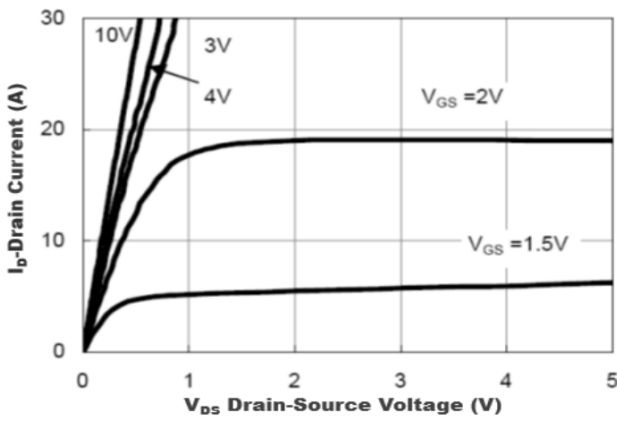


Figure1. Output Characteristics

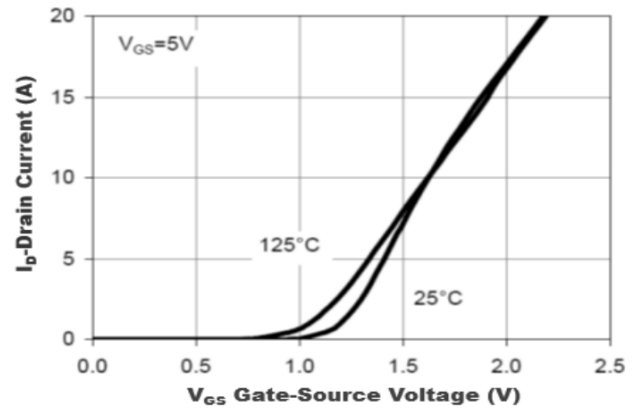


Figure2. Transfer Characteristics

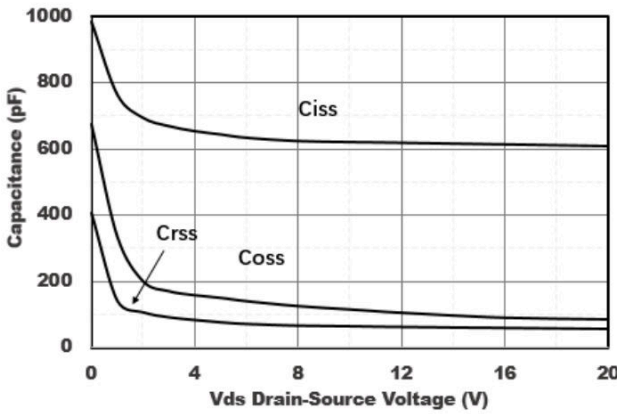


Figure3. Capacitance Characteristics

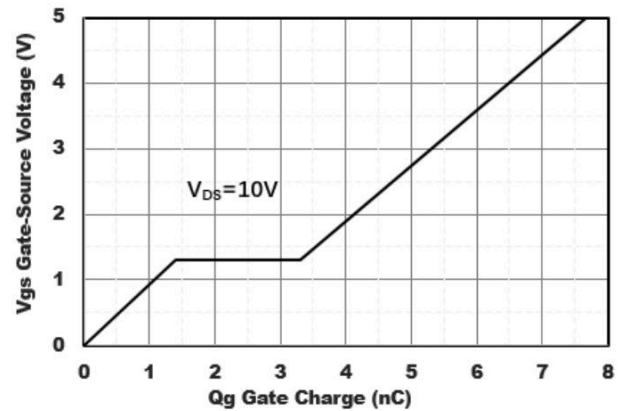


Figure4. Gate Charge

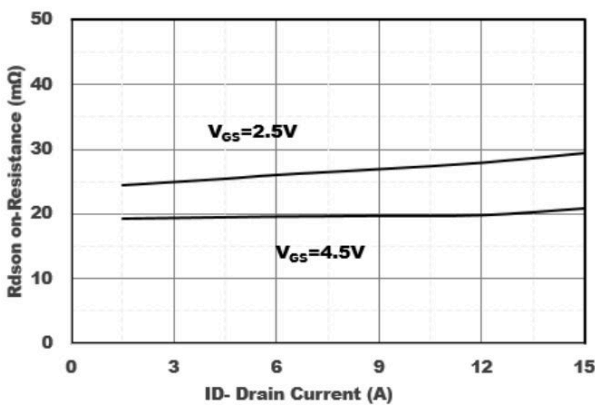


Figure5. Drain-Source on Resistance

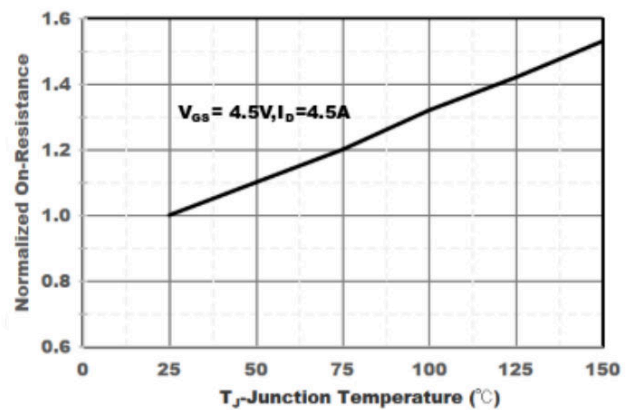


Figure6. Drain-Source on Resistance

## Typical Characteristics

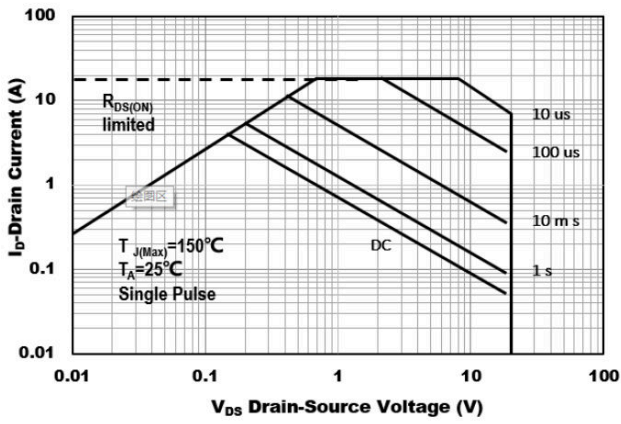


Figure7. Safe Operation Area

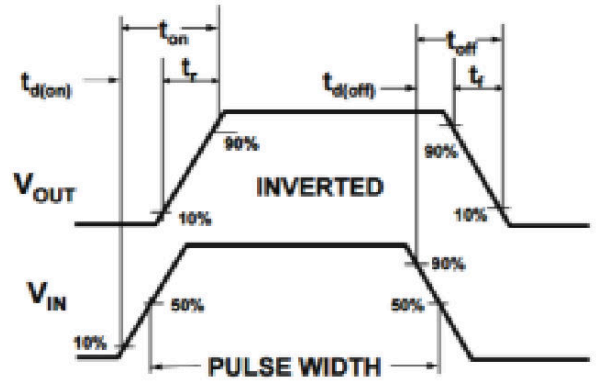
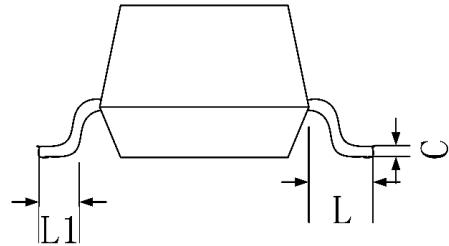
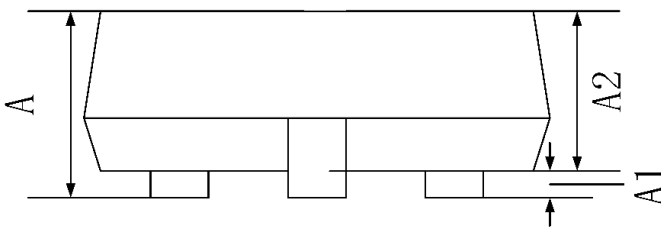
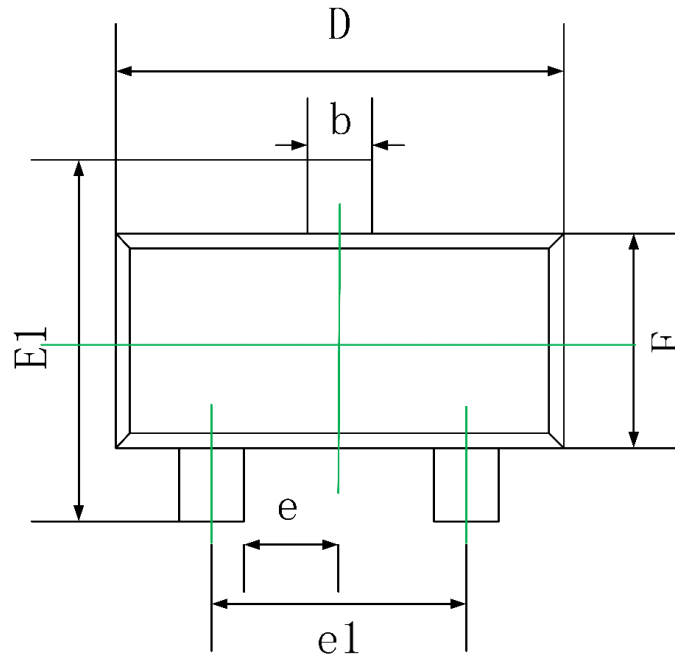


Figure8. Switching wave

## 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