

**Product Summary**

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	$I_D$
-60V	190mΩ@-10V	-1.6A
	250mΩ@-4.5V	

**Feature**

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

**Application**

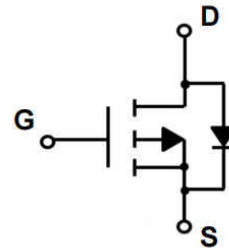
- Load Switch for Portable Devices
- DC/DC Converter

**Package**

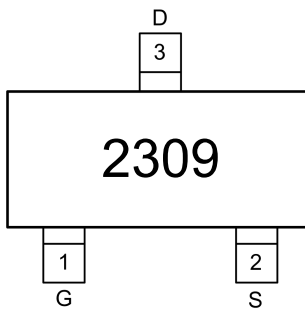


SOT-23

**Circuit diagram**



**Marking**



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

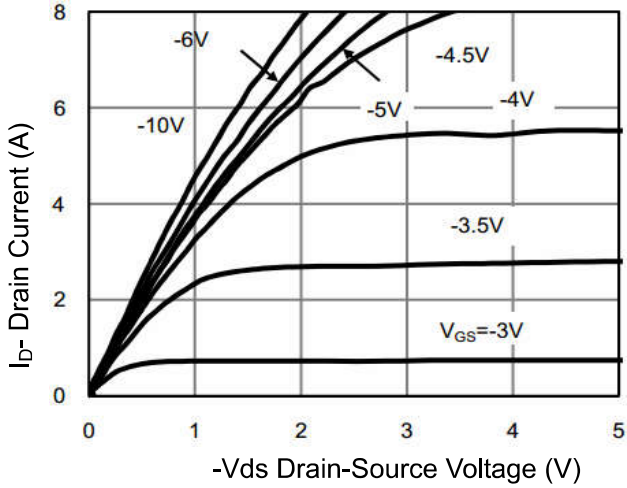
Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	-60	V
Gate-Source Voltage	$V_{GS}$	±20	V
Continuous Drain Current	$I_D$	-1.6	A
Pulsed Drain Current	$I_{DM}$	-8	A
Power Dissipation	$P_D$	1.5	W
Junction Temperature	$T_J$	150	°C
Storage Temperature	$T_{STG}$	-55 ~ +150	°C

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

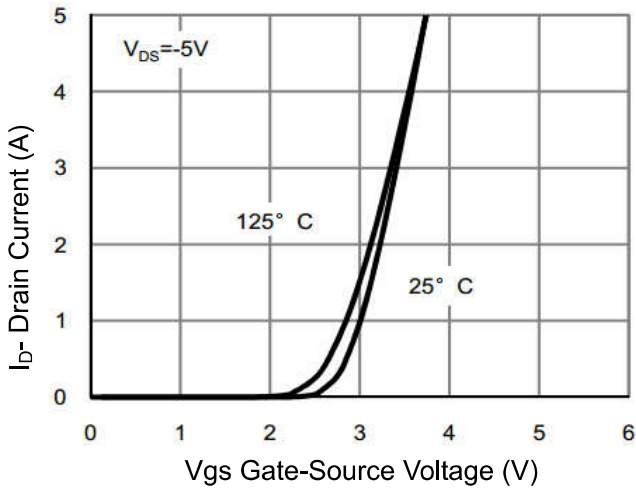
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	-60			V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = -60V, V_{GS} = 0V$			-1	μA
Gate-body leakage current	$I_{GSS}$	$V_{GS} = \pm 20V, V_{DS} = 0V$			±100	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	-1.4		-2.5	V
Drain-source on-resistance <sup>1)</sup>	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -1.5A$			190	mΩ
		$V_{GS} = -4.5V, I_D = -1.0A$			250	
<b>Dynamic characteristics<sup>2)</sup></b>						
Input Capacitance	$C_{iss}$	$V_{DS} = -30V, V_{GS} = 0V, f = 1MHz$		370		pF
Output Capacitance	$C_{oss}$			32		
Reverse Transfer Capacitance	$C_{rss}$			5		
Total Gate Charge	$Q_g$	$V_{DS} = -30V, V_{GS} = -10V, I_D = -1.5A$		14.5		nC
Gate-Source Charge	$Q_{gs}$			2.3		
Gate-Drain Charge	$Q_{gd}$			3.3		
Turn-on delay time	$t_{d(on)}$	$V_{DD} = -30V, V_{GS} = -10V, R_{GEN} = 3\Omega$		40		nS
Turn-on rise time	$t_r$			35		
Turn-off delay time	$t_{d(off)}$			15		
Turn-off fall time	$t_f$			10		
<b>Source-Drain Diode characteristics</b>						
Diode Forward Current <sup>1)</sup>	$I_S$				-1.6	A
Diode Forward voltage	$V_{DS}$	$V_{GS} = 0V, I_S = -1.5A$			-1.2	V

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

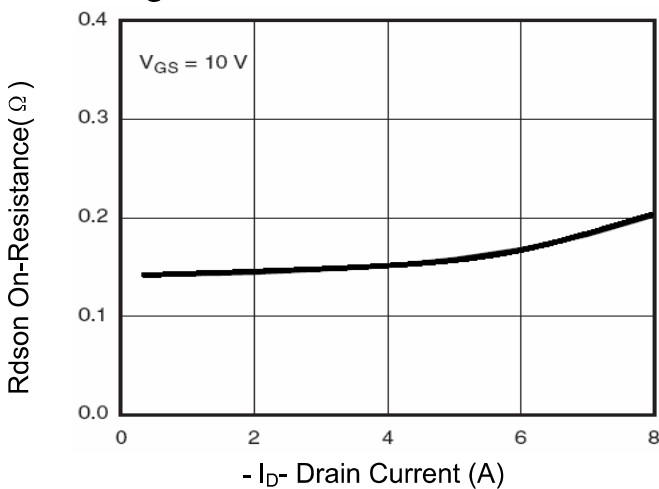
**Typical Characteristics**



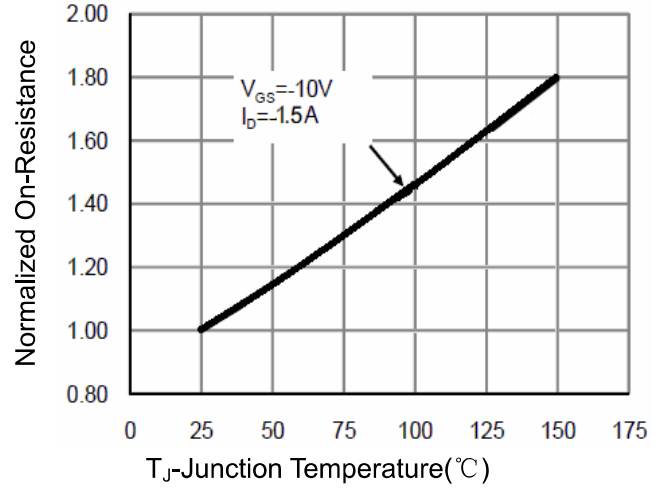
**Figure 1 Output Characteristics**



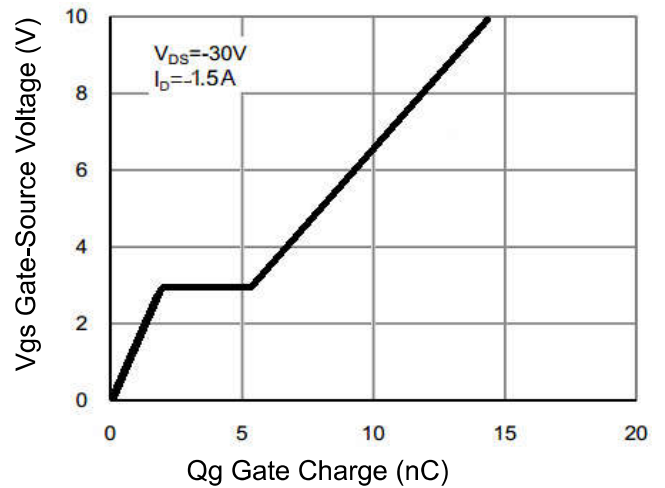
**Figure 2 Transfer Characteristics**



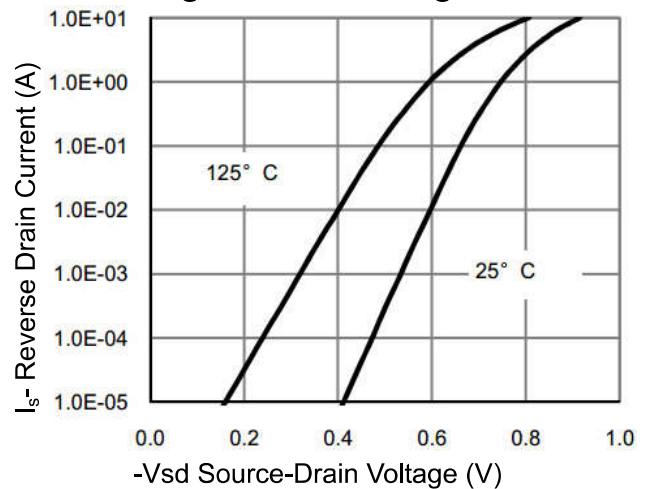
**Figure 3 Rdson- Drain Current**



**Figure 4 Rdson-Junction Temperature**

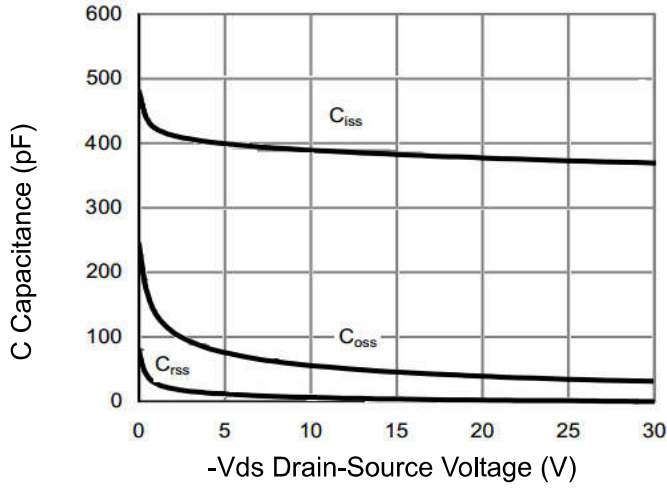


**Figure 5 Gate Charge**

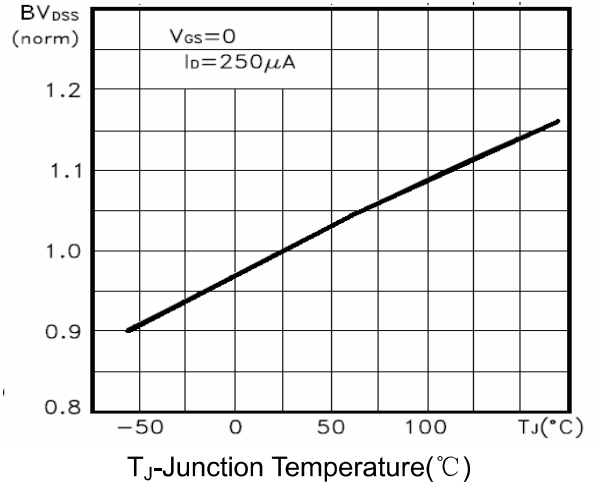


**Figure 6 Source- Drain Diode Forward**

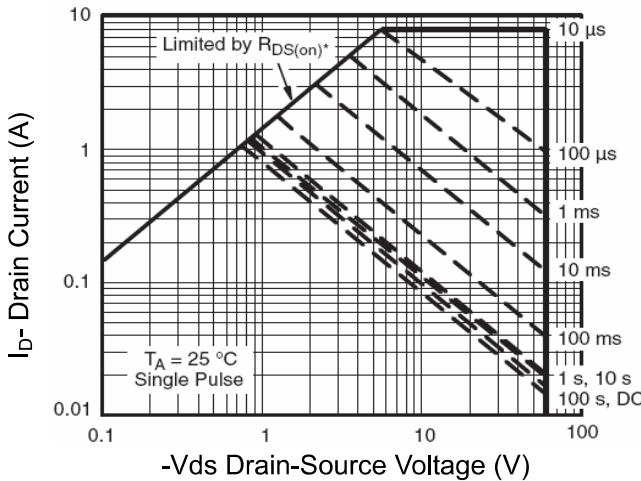
**Typical Characteristics**



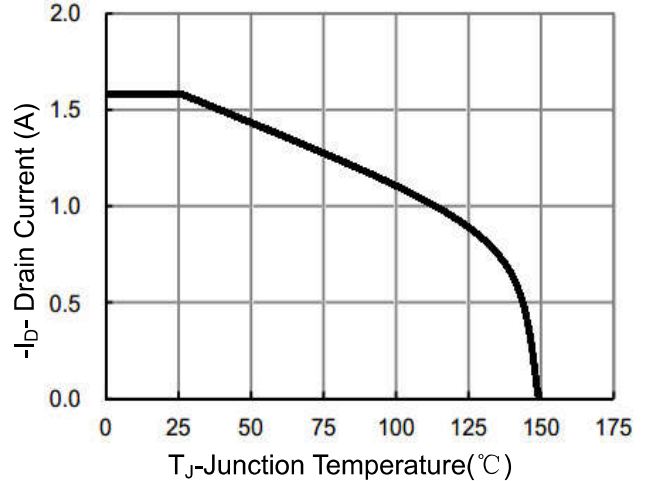
**Figure 7 Capacitance vs Vds**



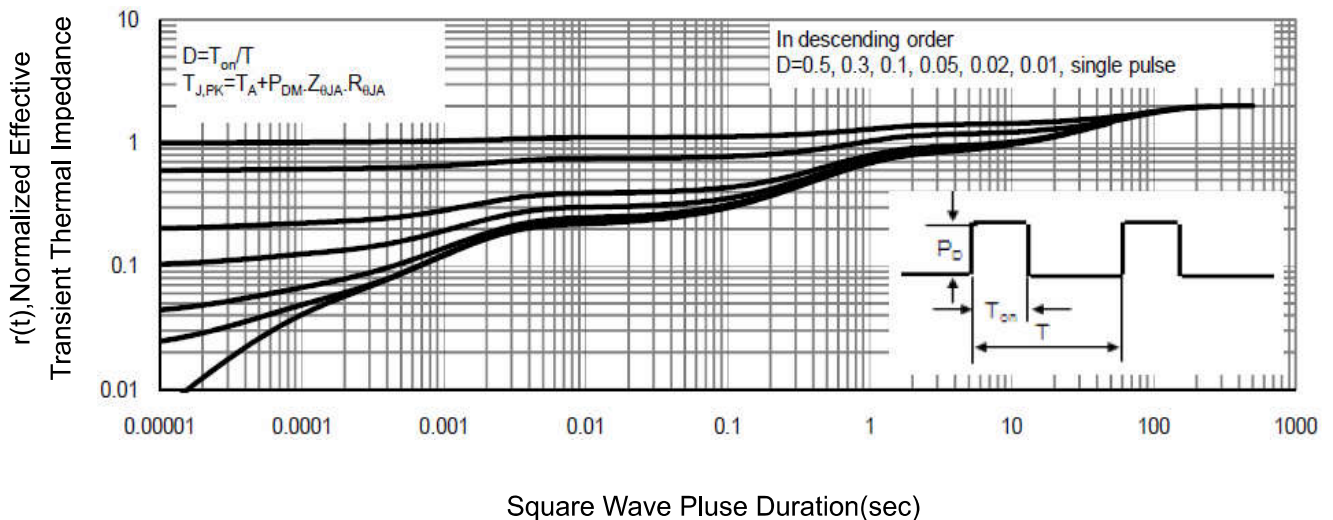
**Figure 9 BV<sub>DSS</sub> vs Junction Temperature**



**Figure 8 Safe Operation Area**

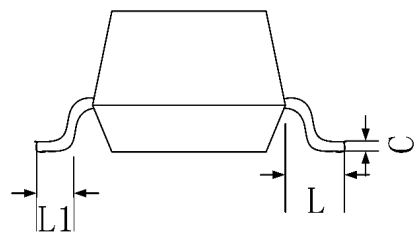
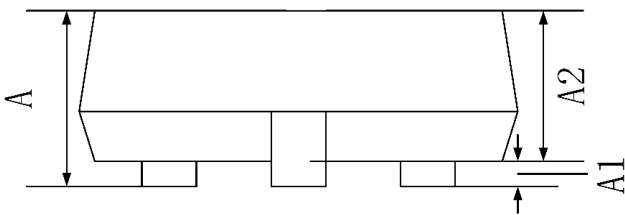
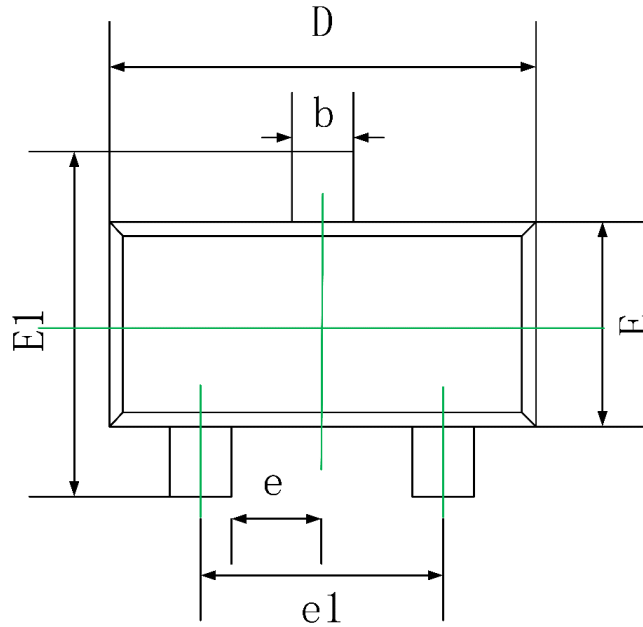


**Figure 10 ID Current De-rating**



**Figure 11 Normalized Maximum Transient Thermal Impedance**

**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