

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-30V	55mΩ@-10V	-4.8A
	65mΩ@-4.5V	

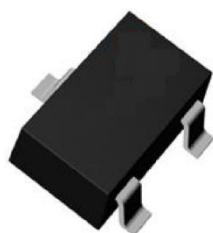
Feature

- Advanced Trench technology
- Excellent $R_{DS(on)}$
- Low gate charge

Application

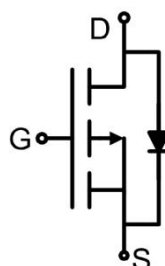
- Battery protection
- Load switch
- Uninterruptible power supply

Package

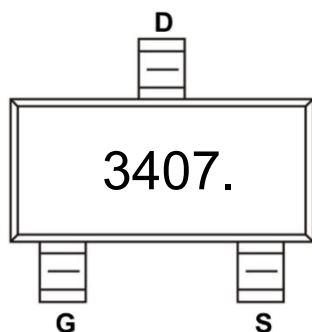


SOT-23

Circuit diagram



Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	-30	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current ¹⁾ (V _{GS} = -10V)	I _D	-4.8	A
Continuous Drain Current ¹⁾ (V _{GS} = -10V, T _C = 100°C)	I _D (100°C)	-3.3	A
Pulsed Drain Current ²⁾	I _{DM}	-20.4	A
Power Dissipation ³⁾ (T _A = 25°C)	P _D	2.15	W
Thermal Resistance Junction to Ambient	R _{θJA}	58.1	°C/W
Operating Junction Temperature	T _J	-55 ~ +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	-30			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =-30V, V _{GS} =0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-1	-1.5	-2.5	V
Drain-source on-resistance ²⁾	R _{DS(on)}	V _{GS} =-10V, I _D =-4.1A		40	55	mΩ
		V _{GS} =-4.5V, I _D =-3A		54	65	
Dynamic characteristics ⁴⁾						
Input Capacitance	C _{iss}	V _{DS} =-15V, V _{GS} =0V, f =1MHz		530		pF
Output Capacitance	C _{oss}			70		
Reverse Transfer Capacitance	C _{rss}			56		
Total Gate Charge	Q _g	V _{DS} =-15V, V _{GS} =-10V I _D =-4.1A		6.8		nC
Gate-Source Charge	Q _{gs}			1		
Gate-Drain Charge	Q _{gd}			1.4		
Turn-on delay time	t _{d(on)}	V _{DS} =-15V, V _{GS} =-10V R _L =15Ω, R _G =2.5Ω		14		nS
Turn-on rise time	t _r			61		
Turn-off delay time	t _{d(off)}			19		
Turn-off fall time	t _f			10		
Source-Drain Diode characteristics						
Diode Forward Current	I _S				-4.1	A
Diode Forward voltage ²⁾	V _{SD}	V _{GS} =0V, I _S =-4.1A			-1.2	V

Notes:

- 1) The data tested by surface mounted on a 1 inch² FR-4 board with 20Z 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) Guaranteed by design, not subject to production testing.

Typical Characteristics

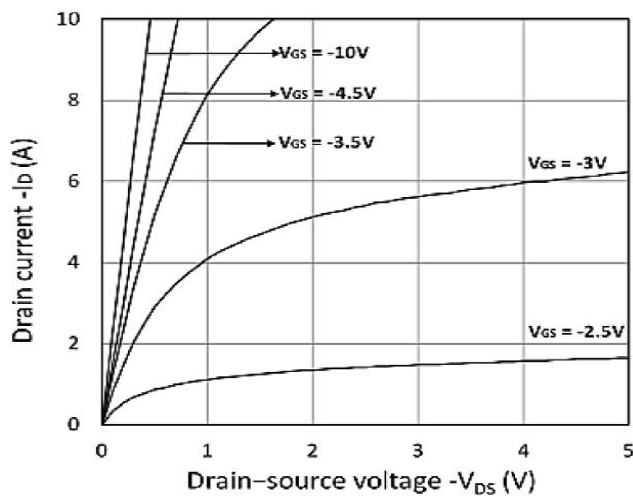


Figure 1. Output Characteristics

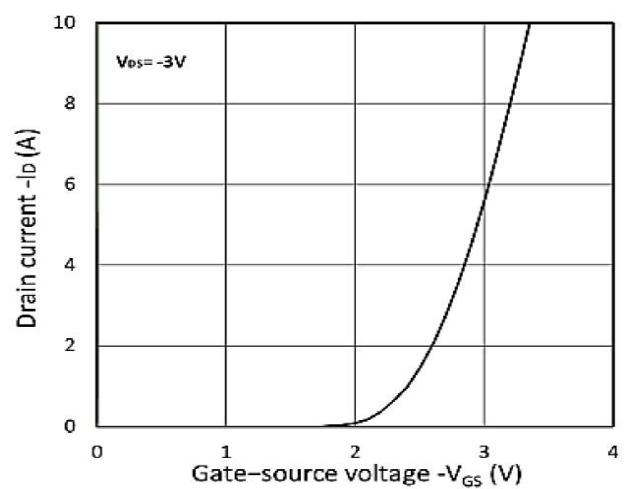


Figure 2. Transfer Characteristics

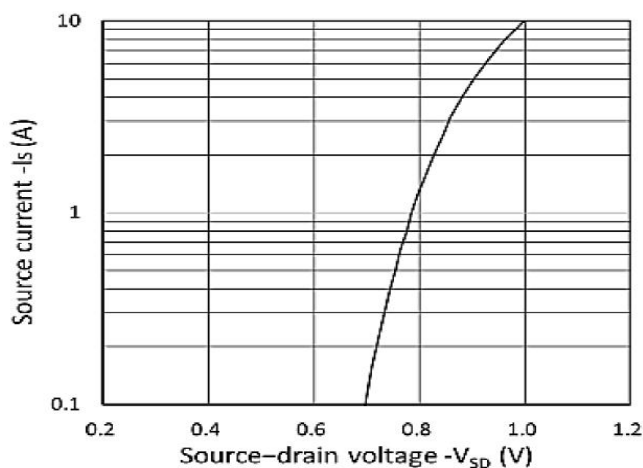


Figure 3. Forward Characteristics of Reverse

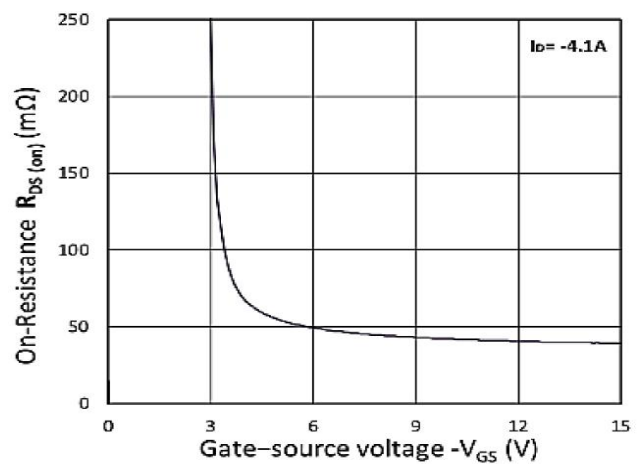


Figure 4. R_DS(ON) vs. V_GS

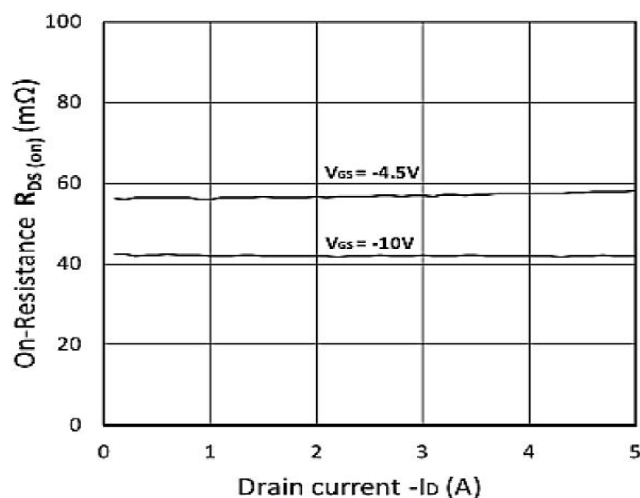


Figure 5. R_DS(ON) vs. I_D

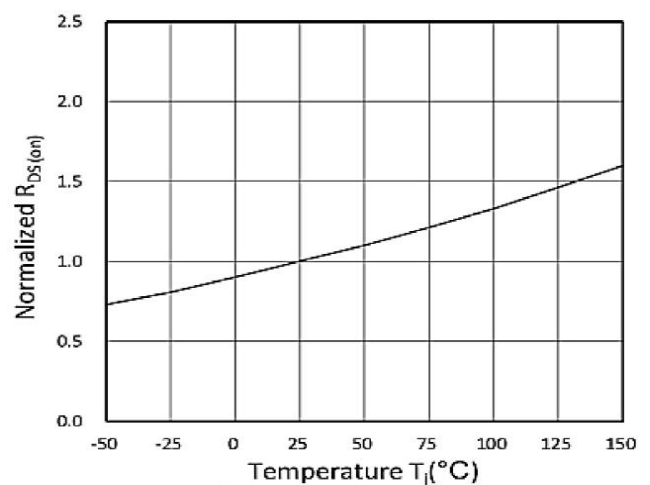


Figure 6. Normalized R_DS(on) vs. Temperature

Typical Characteristics

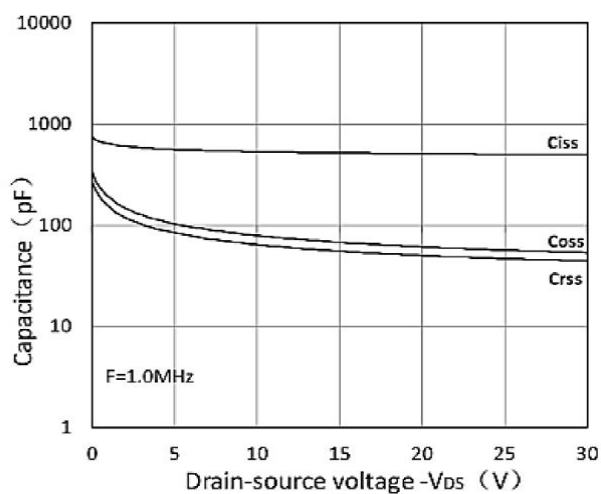


Figure 7. Capacitance Characteristics

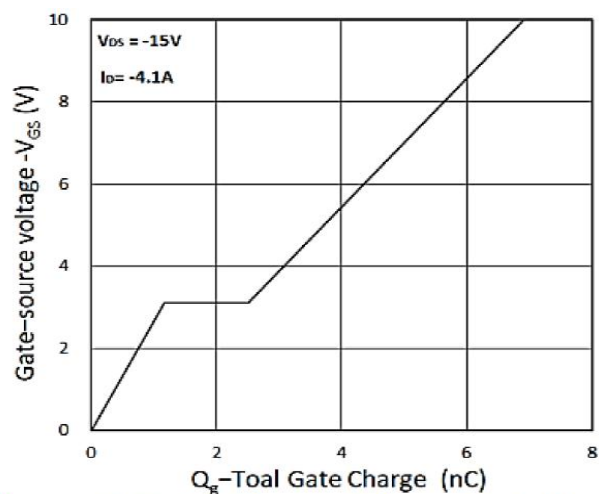


Figure 8. Gate Charge Characteristics

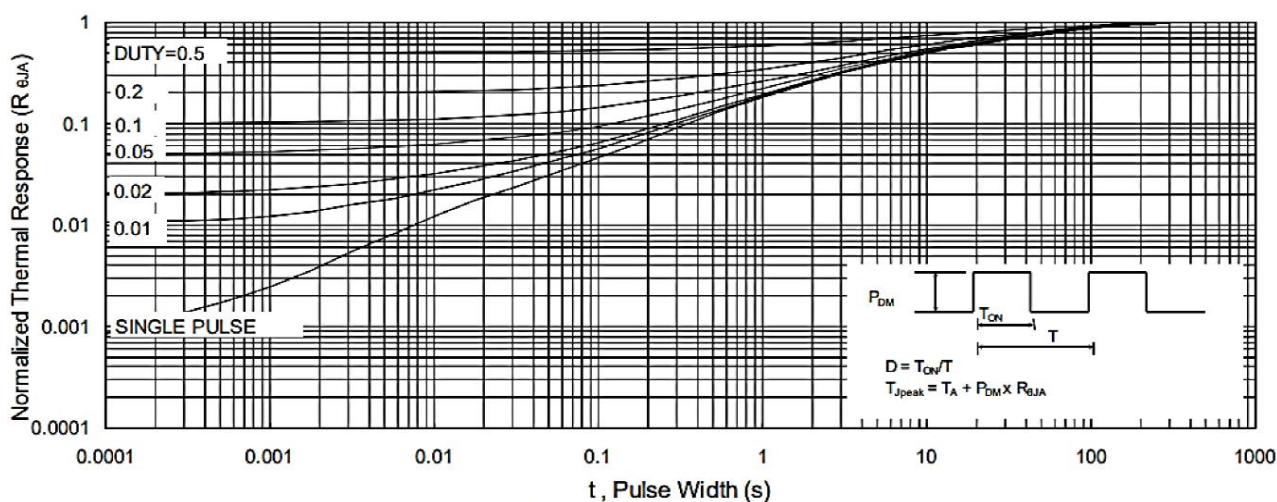


Figure 9 Normalized Maximum Transient Thermal Impedance

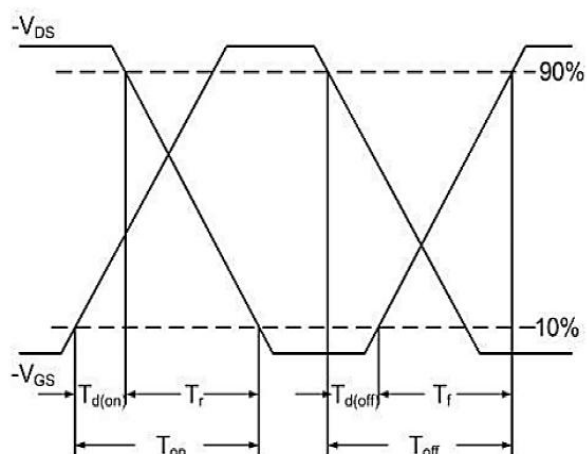


Figure.10 Switching Time Waveform

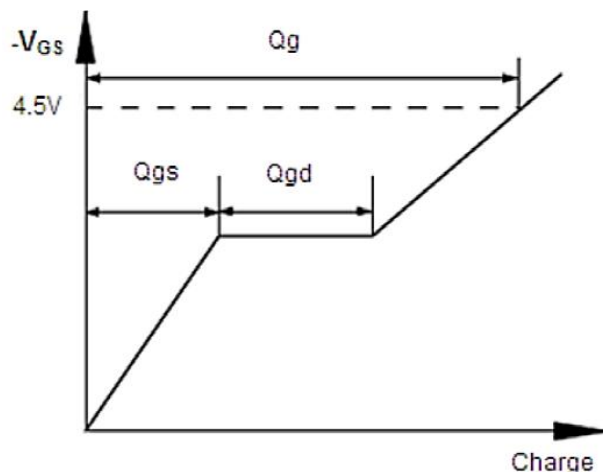
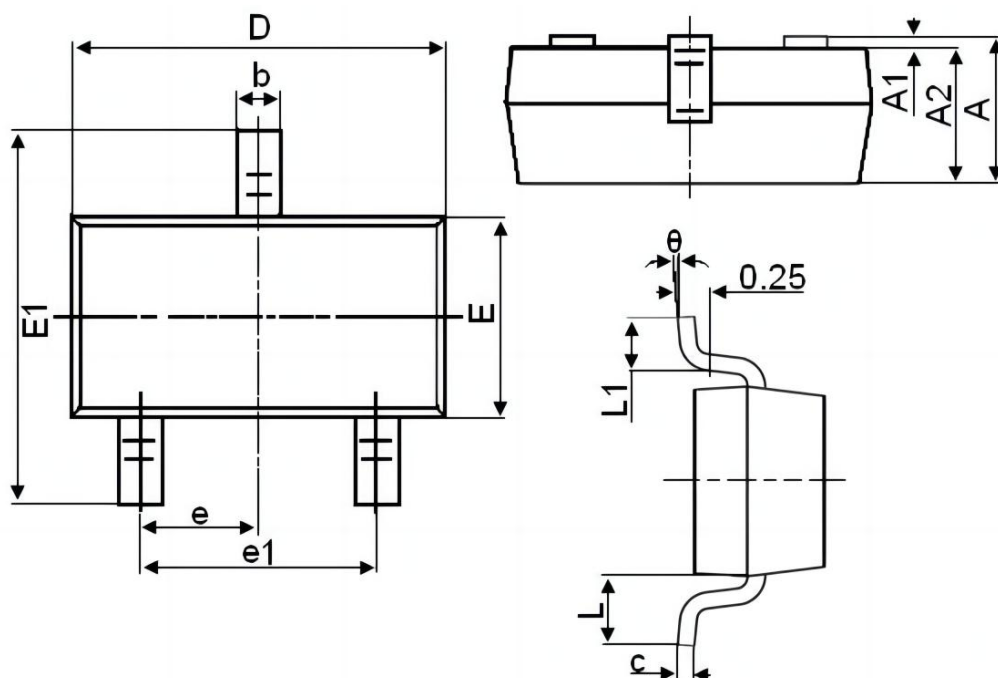


Figure.11 Gate Charge Waveform

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
θ	0°	8°	0°	8°