



**Electrical Characteristics** ( $T_J=25^\circ\text{C}$  unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-30	-	-	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-30V, V_{GS}=0V$	-	-	-1	$\mu A$
Gate-Source Leakage	$I_{GSS}$	$V_{DS}=0V, V_{GS}=\pm 20V$	-	-	$\pm 100$	nA
Gate-Source Threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1	-1.7	-2.5	V
Drain-Source on-State Resistance <sup>3</sup>	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-4.1A$	-	40	49	m $\Omega$
		$V_{GS}=-4.5V, I_D=-3A$	-	50	65	
<b>Dynamic Characteristics<sup>4</sup></b>						
Input Capacitance	$C_{iss}$	$V_{GS}=0V, V_{DS}=-15V,$ $f=1.0MHz$	-	530	-	pF
Output Capacitance	$C_{oss}$		-	70	-	
Reverse Transfer Capacitance	$C_{rss}$		-	56	-	
<b>Switching Characteristics<sup>4</sup></b>						
Total Gate Charge	$Q_g$	$V_{GS}=-10V, V_{DS}=-15V,$ $I_D=-4.1A$	-	6.8	-	nC
Gate-Source Charge	$Q_{gs}$		-	1.0	-	
Gate-Drain Charge	$Q_{gd}$		-	1.4	-	
Turn-on Delay Time	$t_{d(on)}$	$V_{GS}=-10V, V_{DS}=-15V,$ $R_L=15\Omega, R_{GEN}=2.5\Omega$	-	14	-	ns
Rise Time	$t_r$		-	61	-	
Turn-off Delay time	$t_{d(off)}$		-	19	-	
Fall Time	$t_f$		-	10	-	
<b>Source-Drain Body Diode Characteristics</b>						
Diode Forward Voltage <sup>3</sup>	$V_{SD}$	$I_S=-4.1A, V_{GS}=0V$	-	-	-1.2	V
Continuous Source Current	$I_S$		-	-	-4.6	A

**Notes:**

1. Repetitive rating, pulse width limited by junction temperature  $T_{J(MAX)}=150^\circ\text{C}$ .
2. The data tested by surface mounted on a 1 inch<sup>2</sup> FR-4 board with 2OZ copper, The value in any given application depends on the user's specific board design.
3. Pulse Test: Pulse width $\leq 300\mu s$ , duty cycle $\leq 2\%$ .
4. This value is guaranteed by design hence it is not included in the production test.

Typical Characteristics

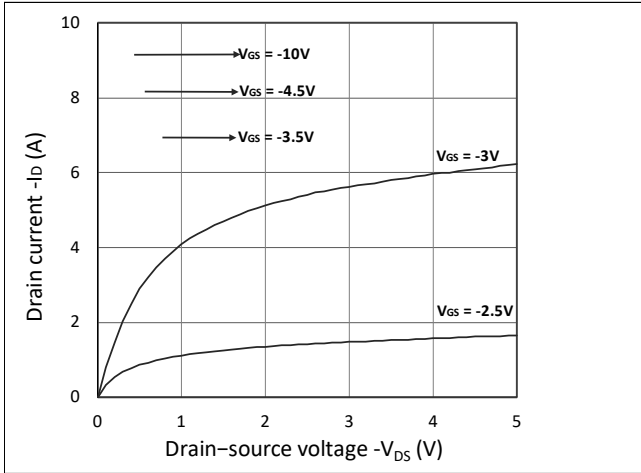


Figure 1. Output Characteristics

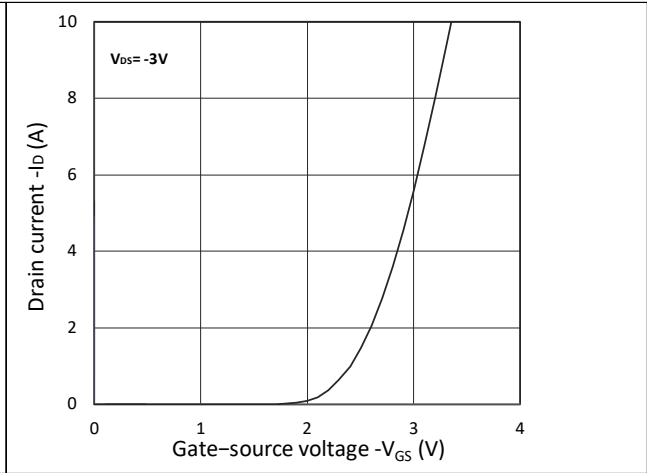


Figure 2. Transfer Characteristics

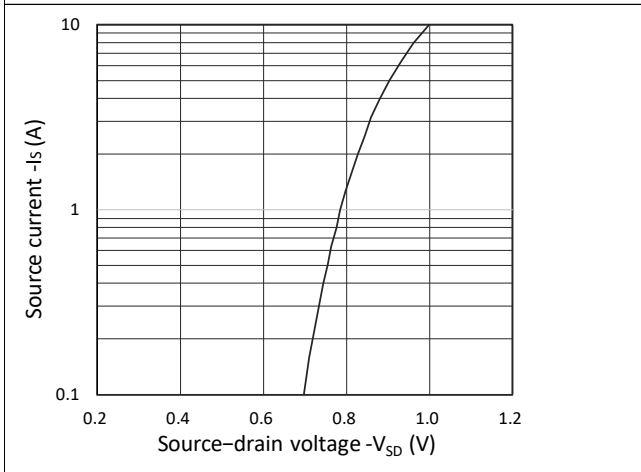


Figure 3. Forward Characteristics of Reverse

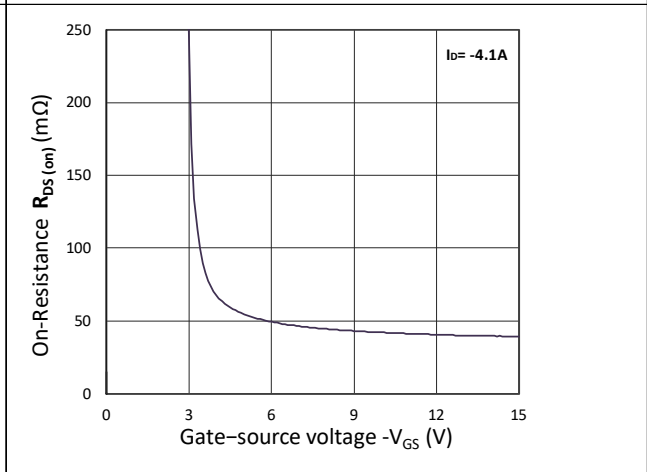


Figure 4.  $R_{DS(ON)}$  vs.  $V_{GS}$

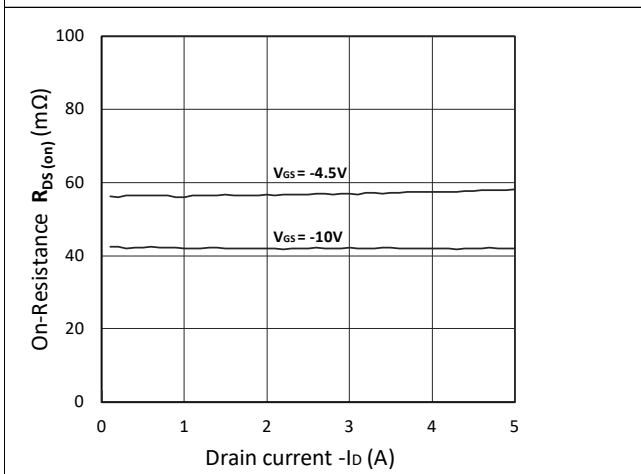


Figure 5.  $R_{DS(ON)}$  vs.  $I_D$

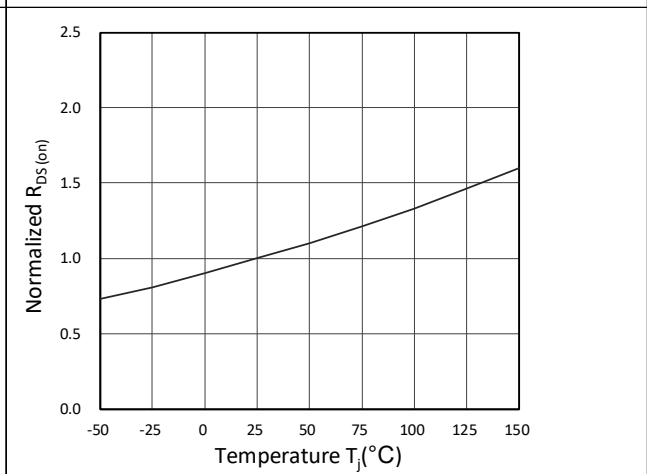


Figure 6. Normalized  $R_{DS(on)}$  vs. Temperature

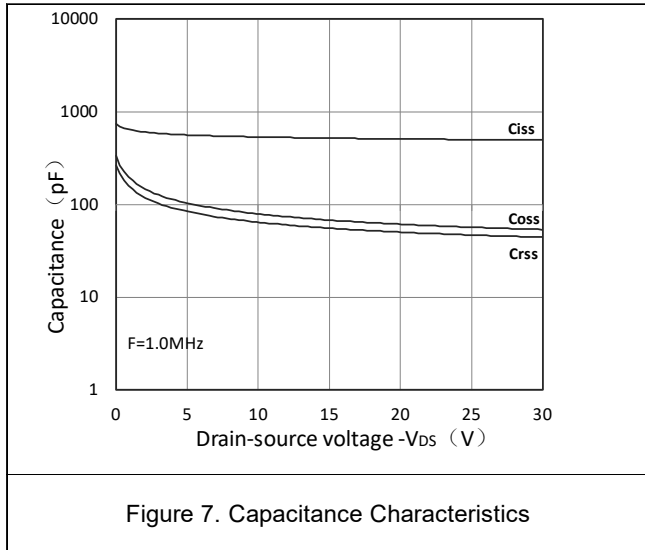


Figure 7. Capacitance Characteristics

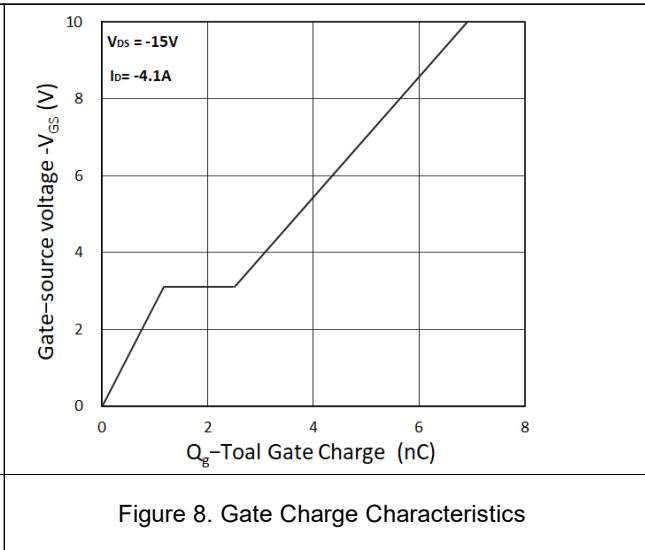
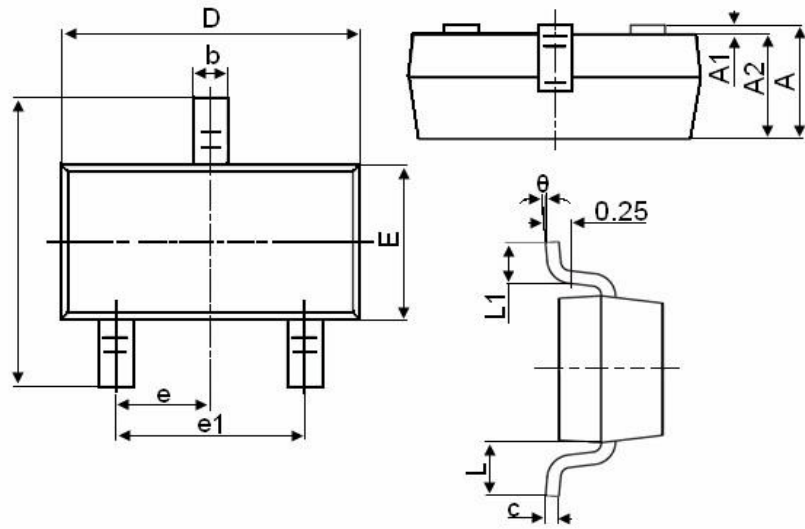


Figure 8. Gate Charge Characteristics

### Package Mechanical Data:SOT-23



Symbol	Dimensions in Millimeters	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°