

Features

- High-speed switching
- Green Device Available
- Surface mount package

Product Summary



V_{DS}	50	V
I_D	0.22	A
$R_{DS(ON)}$ (at $V_{GS}=10V$)	2	Ω
$R_{DS(ON)}$ (at $V_{GS}=5V$)	3	Ω

Applications

- Power Management Load Switch
- Portable Applications such as Cell Phones, Media Players, Digital Cameras, Hand Held Computers, etc.
- Battery operated systems, Solid-state relays



Absolute Maximum Ratings($T_A=25^\circ C$, unless otherwise noted)

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	50	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	$I_D@T_A=25^\circ C$	0.22	A
Pulsed Drain Current ¹	I_{DM}	0.88	A
Total Power Dissipation	P_D	0.35	W
Storage Temperature Range	T_{STG}	-55 to 150	$^\circ C$
Operating Junction Temperature Range	T_J	-55 to 150	$^\circ C$

Thermal Characteristics

Parameter	Symbol	Typ	Max	Unit
Thermal Resistance Junction-Ambient ¹	$R_{\theta JA}$	---	350	$^\circ C/W$

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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	50	60	---	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=0.5A$	---	1	2	Ω
		$V_{GS}=5V, I_D=0.05A$	---	1.2	3	Ω
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	0.8	1.2	1.6	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=50V, V_{GS}=0V, T_J=25^{\circ}\text{C}$	---	---	0.5	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 100	nA
Forward Transconductance	g_{fs}	$V_{DS}=10V, I_D=0.2A$	0.12	--	---	S
Total Gate Charge	Q_g	$V_{DS}=25V, V_{GS}=10V, I_D=0.3A$	---	1.7	2.4	nC
Turn-On Delay Time	$T_{d(on)}$	$V_{DD}=30V, I_D=0.22A, V_{GS}=10V, R_G=6\Omega$	---	2.5	---	ns
Rise Time	T_r		---	6	---	
Turn-Off Delay Time	$T_{d(off)}$		---	20	---	
Fall Time	T_f		---	7	---	
Input Capacitance	C_{iss}	$V_{DS}=25V, V_{GS}=0V, f=1\text{MHz}$	---	27	---	pF
Output Capacitance	C_{oss}		---	12	---	
Reverse Transfer Capacitance	C_{rss}		---	6	---	

Drain-Source Diode Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Continuous Source Current ²	I_S		---	---	0.22	A
Diode Forward Voltage ³	V_{SD}	$V_{GS}=0V, I_S=0.22A, T_J=25^{\circ}\text{C}$	---	---	1.3	V

Note:

- 1.Repetitive Rating: Pulse width limited by maximum junction temperature.
- 2.The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
- 3.The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$

Typical Characteristics

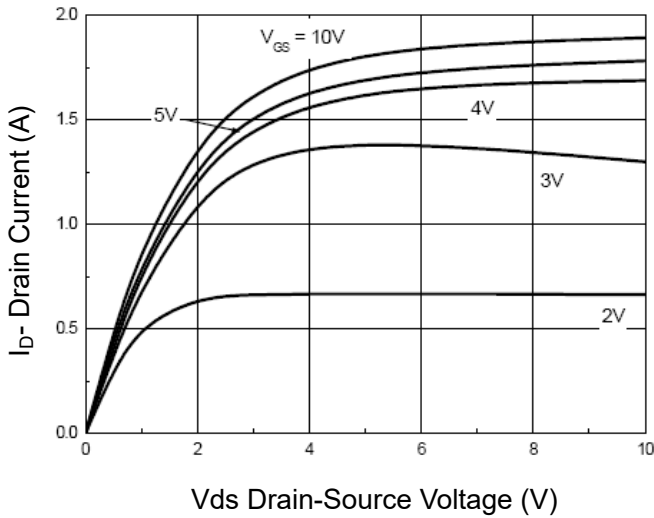


Figure 1 Output Characteristics

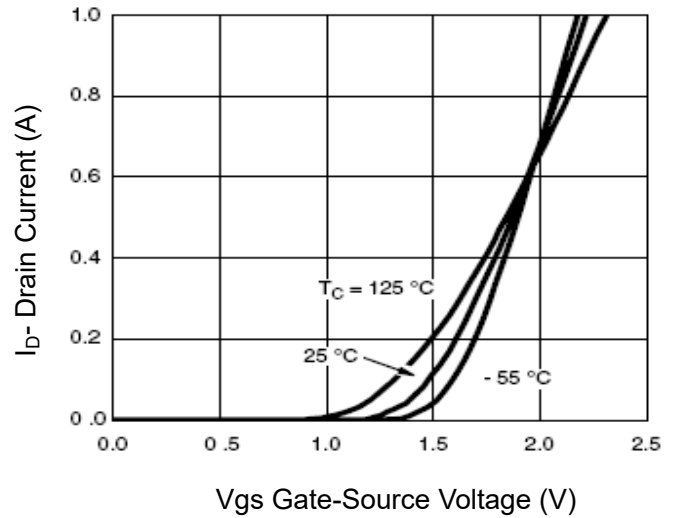


Figure 2 Transfer Characteristics

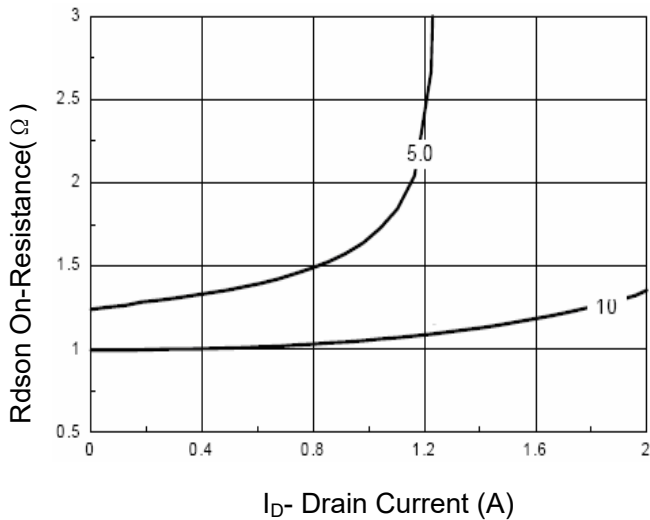


Figure 3 Drain-Source On-Resistance

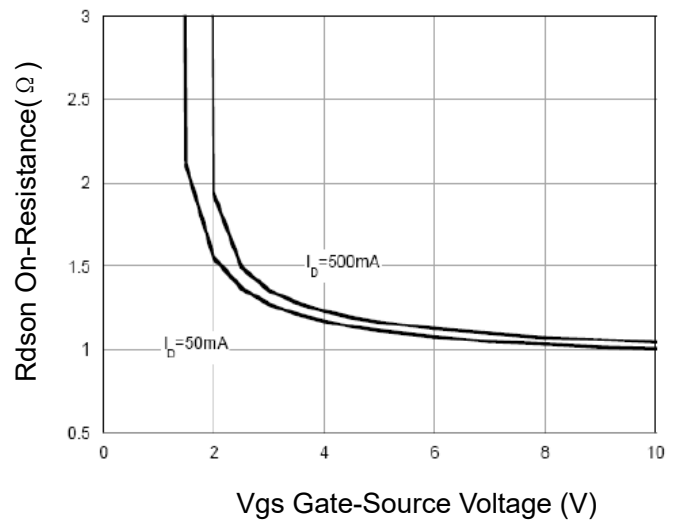


Figure 4 Rds(on) vs Vgs

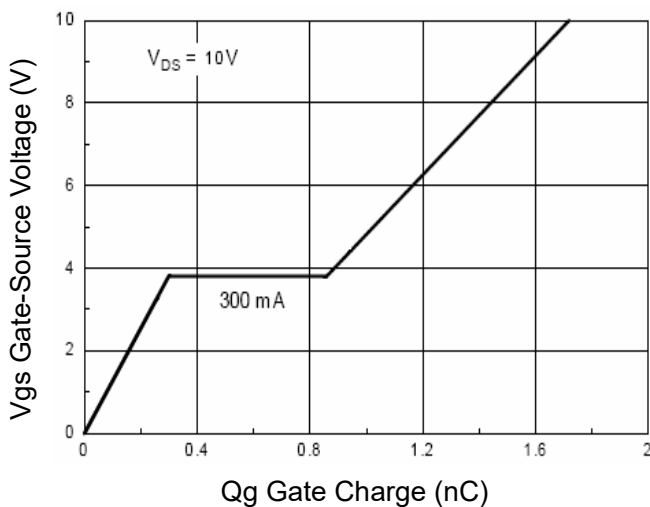


Figure 5 Gate Charge

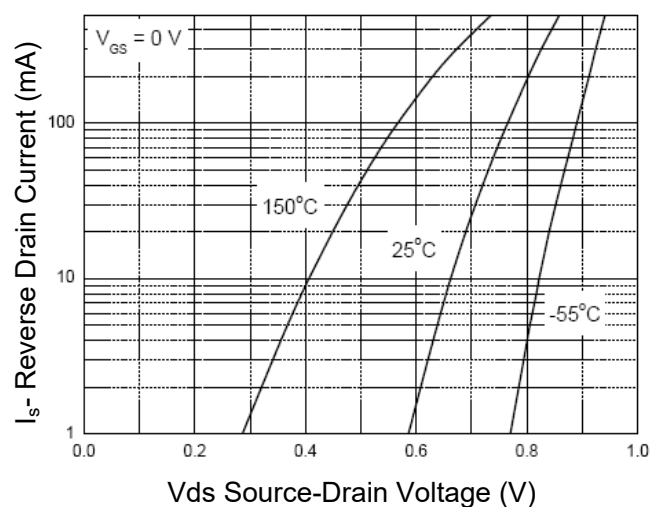


Figure 6 Source-Drain Diode Forward

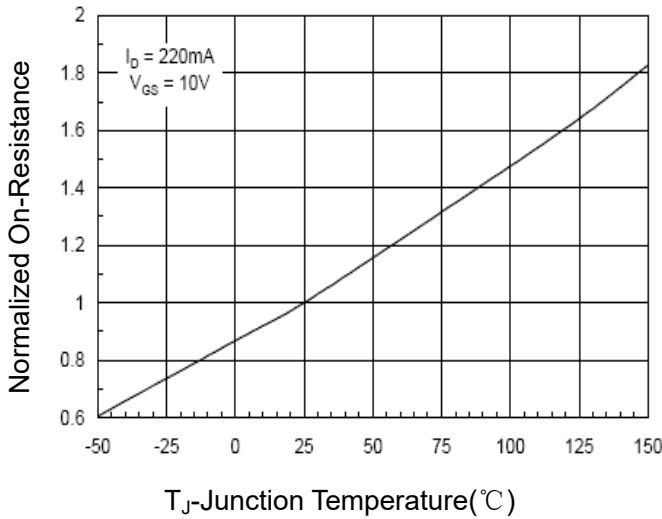


Figure 7 Drain-Source On-Resistance

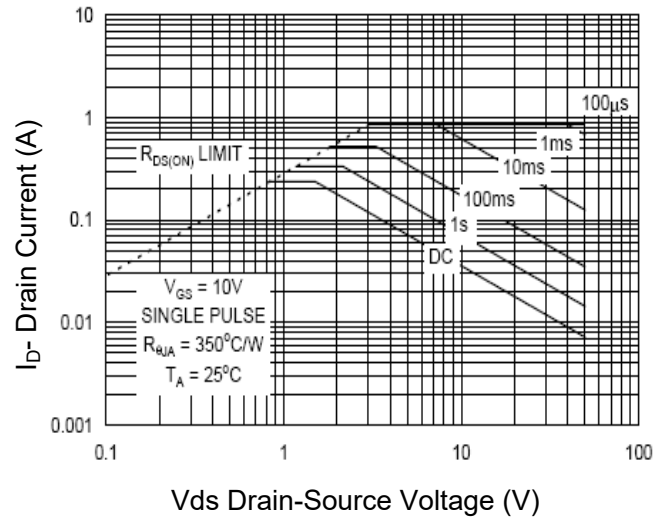


Figure 8 Safe Operation Area

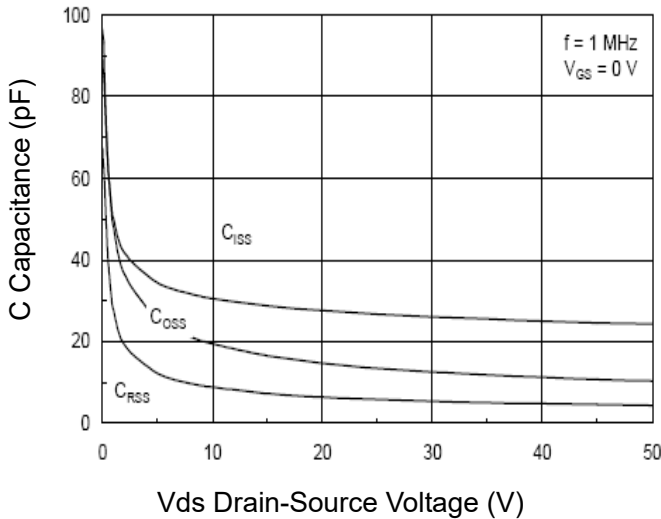


Figure 9 Capacitance vs Vds

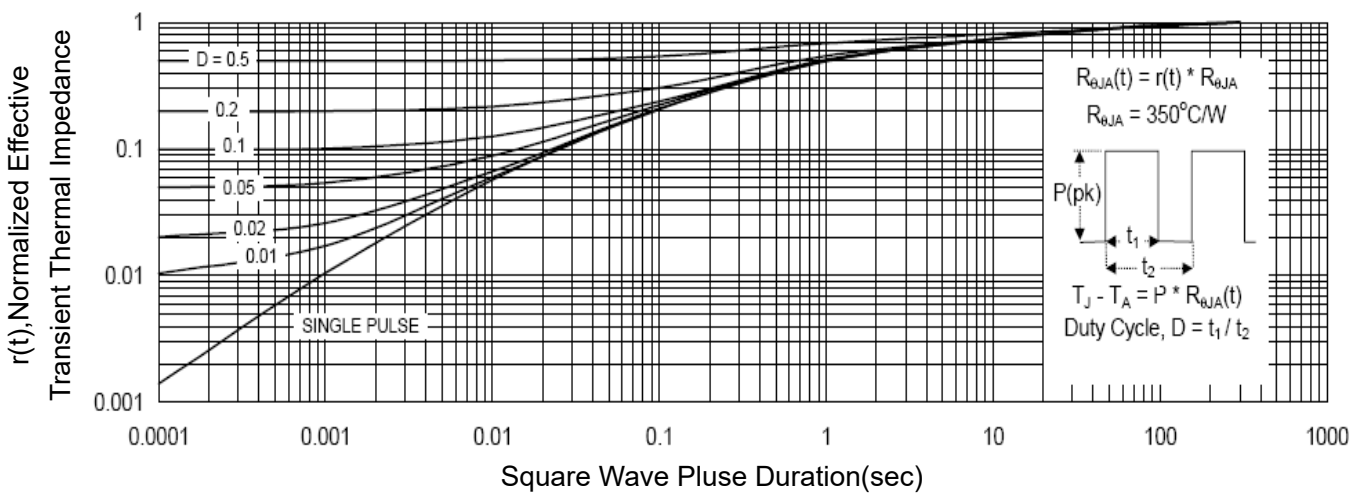


Figure 10 Normalized Maximum Transient Thermal Impedance

SOT23 Package Outline Dimensions



Symbol	Dimensions (unit:mm)			Symbol	Dimensions (unit:mm)		
	Min	Typ	Max		Min	Typ	Max
A	0.90	1.05	1.20	e₁	--	0.95	--
A₁	0.01	0.05	0.10	H_E	2.10	2.40	2.50
b_p	0.38	0.42	0.48	L_p	0.40	0.50	0.60
c	0.09	0.13	0.15	Q	0.45	0.49	0.55
D	2.80	2.92	3.00	V	--	0.20	--
E	1.20	1.33	1.40	W	--	0.10	--
e	--	1.90	--				