

Features

- High-speed switching
- Green Device Available
- ESD Protected 2KV Embedded

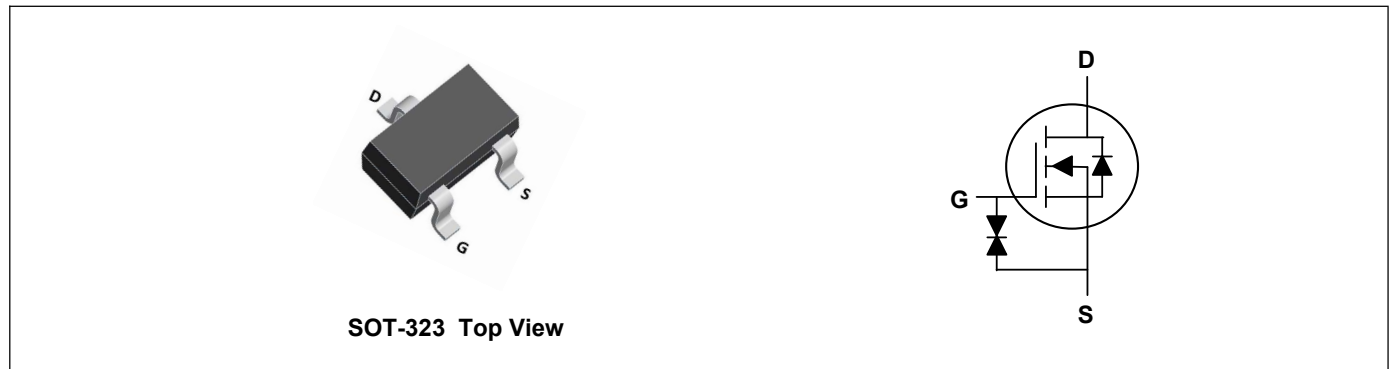
Product Summary



V_{DS}	60	V
I_D	0.3	A
$R_{DS(ON)}$ (at $V_{GS}=10V$)	2.2	Ω
$R_{DS(ON)}$ (at $V_{GS}=4.5V$)	3	Ω

Applications

- Power Management Load Switch
- Portable Applications such as Cell Phones, Media Players, Digital Cameras, Hand Held Computers, etc.
- Power Tools, LED Lighting.



SOT-323 Top View

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

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	$I_D@T_A=25^\circ C$	0.3	A
Continuous Drain Current	$I_D@T_A=100^\circ C$	0.19	A
Pulsed Drain Current ¹	I_{DM}	0.8	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}	$V_{GS}=0V, I_D=250\mu A$	60	68	---	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=0.5A$	---	1.8	2.2	Ω
		$V_{GS}=4.5V, I_D=0.4A$	---	1.95	3	Ω
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	0.7	1.2	1.9	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=60V, V_{GS}=0V, T_J=25^{\circ}\text{C}$	---	---	1	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 10	μA
Forward Transconductance	g_{fs}	$V_{DS}=10V, I_D=0.2A$	0.1	--	---	S
Total Gate Charge	Q_g	$V_{DS}=10V, V_{GS}=4.5V, I_D=0.3A$	---	1.7	3	nC
Turn-On Delay Time	$T_{d(on)}$	$V_{DD}=30V, I_D=0.2A, V_{GS}=10V, R_G=10\Omega$	---	10	---	ns
Rise Time	T_r		---	50	---	
Turn-Off Delay Time	$T_{d(off)}$		---	17	---	
Fall Time	T_f		---	10	---	
Input Capacitance	C_{iss}	$V_{DS}=25V, V_{GS}=0V, f=1\text{MHz}$	---	21	50	pF
Output Capacitance	C_{oss}		---	11	25	
Reverse Transfer Capacitance	C_{rss}		---	4.2	5	

Drain-Source Diode Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Continuous Source Current ²	I_S		---	---	0.3	A
Diode Forward Voltage ³	V_{SD}	$V_{GS}=0V, I_S=0.2A, T_J=25^{\circ}\text{C}$	---	---	1.2	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

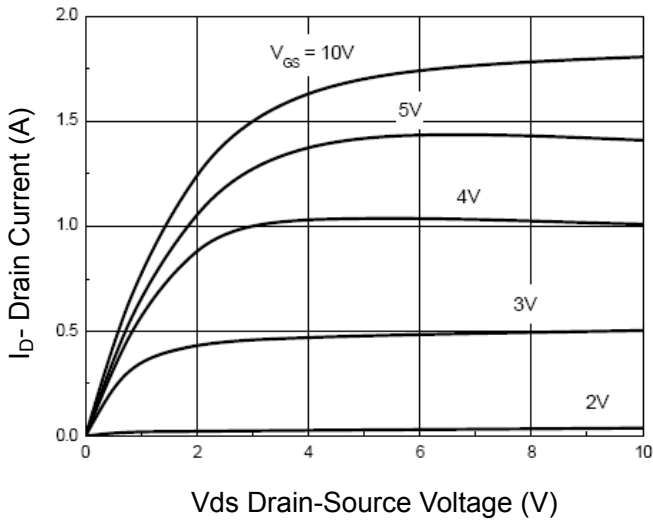


Figure 1 Output Characteristics

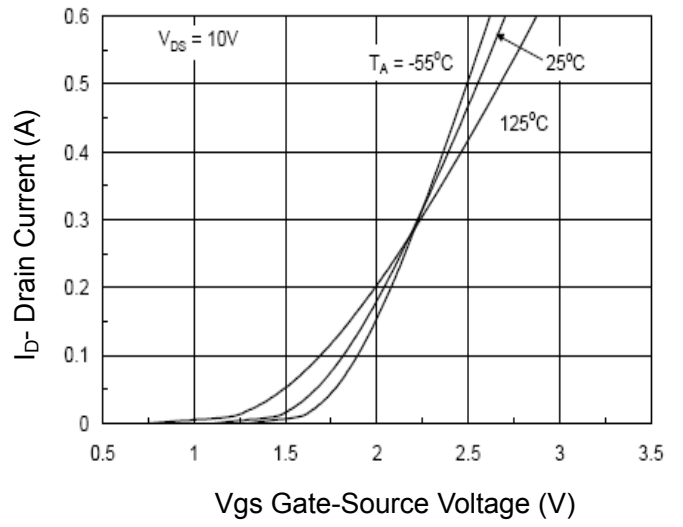


Figure 2 Transfer Characteristics

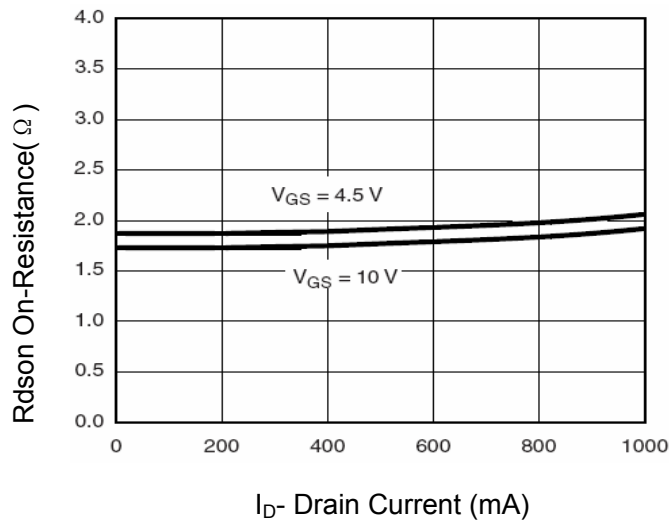


Figure 3 Drain-Source On-Resistance

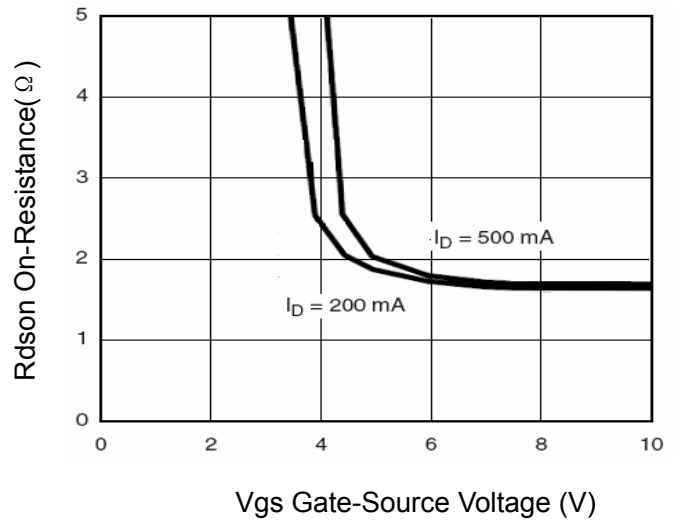


Figure 4 R_{Dson} vs V_{GS}

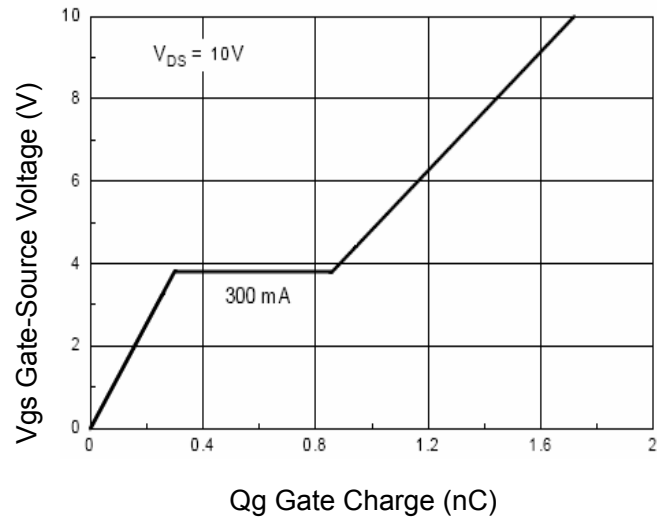


Figure 5 Gate Charge

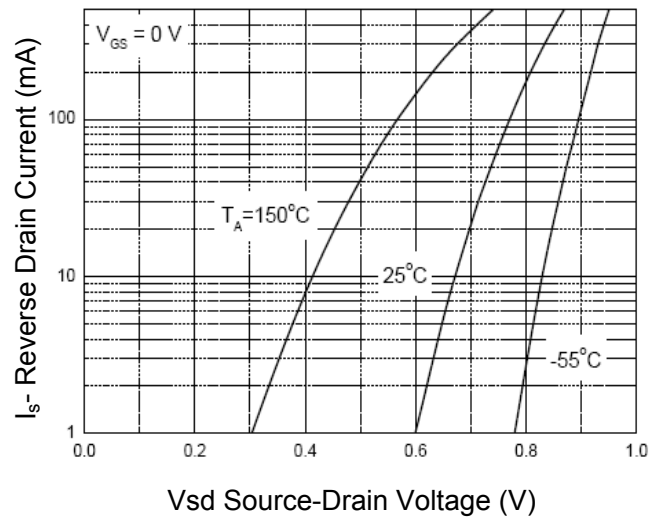


Figure 6 Source-Drain Diode Forward

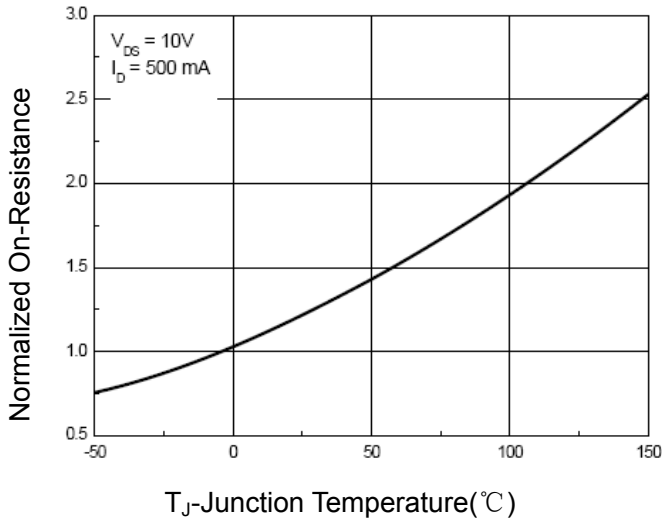


Figure 7 Drain-Source On-Resistance

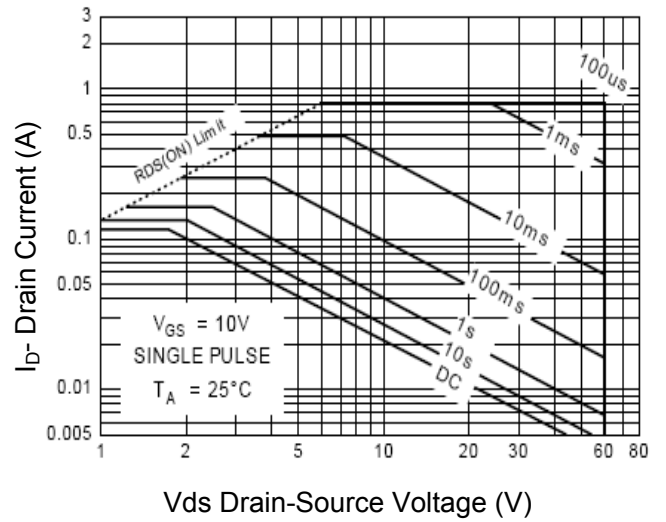


Figure 8 Safe Operation Area

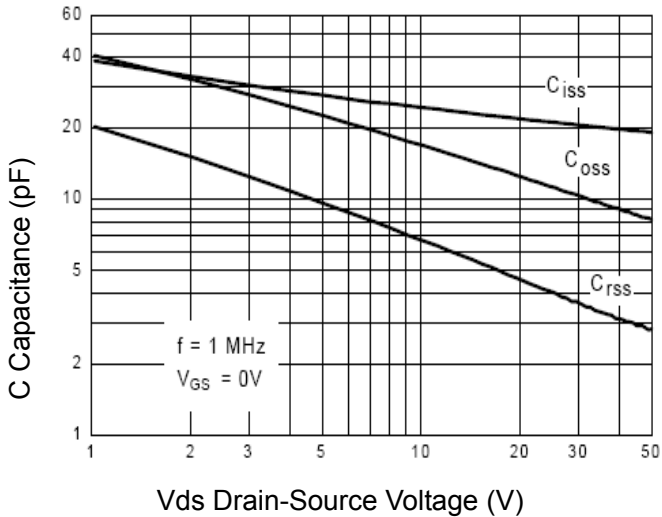


Figure 9 Capacitance vs Vds

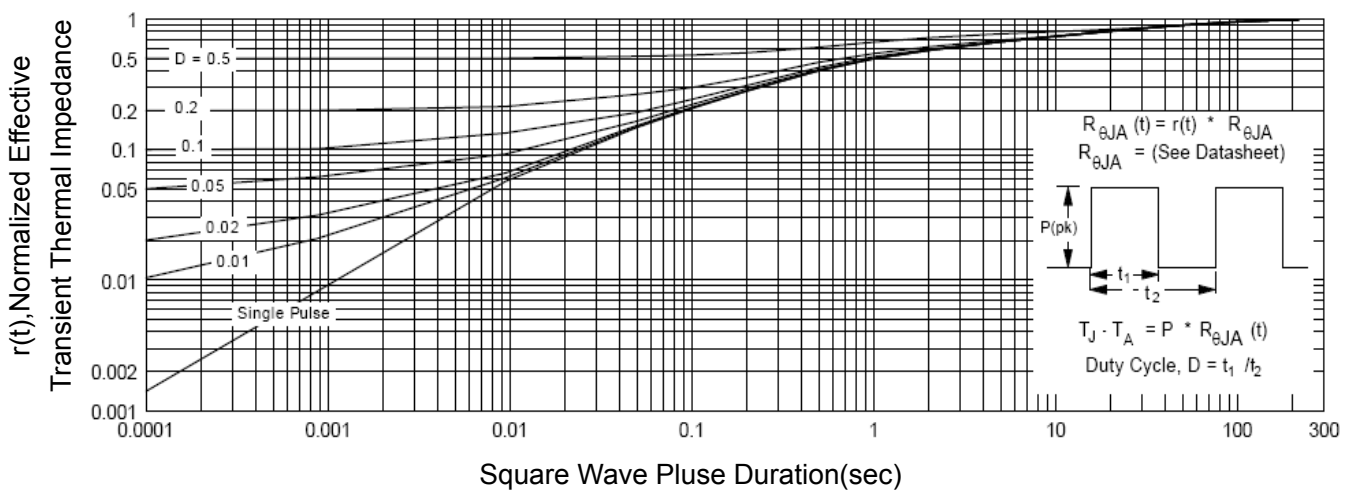
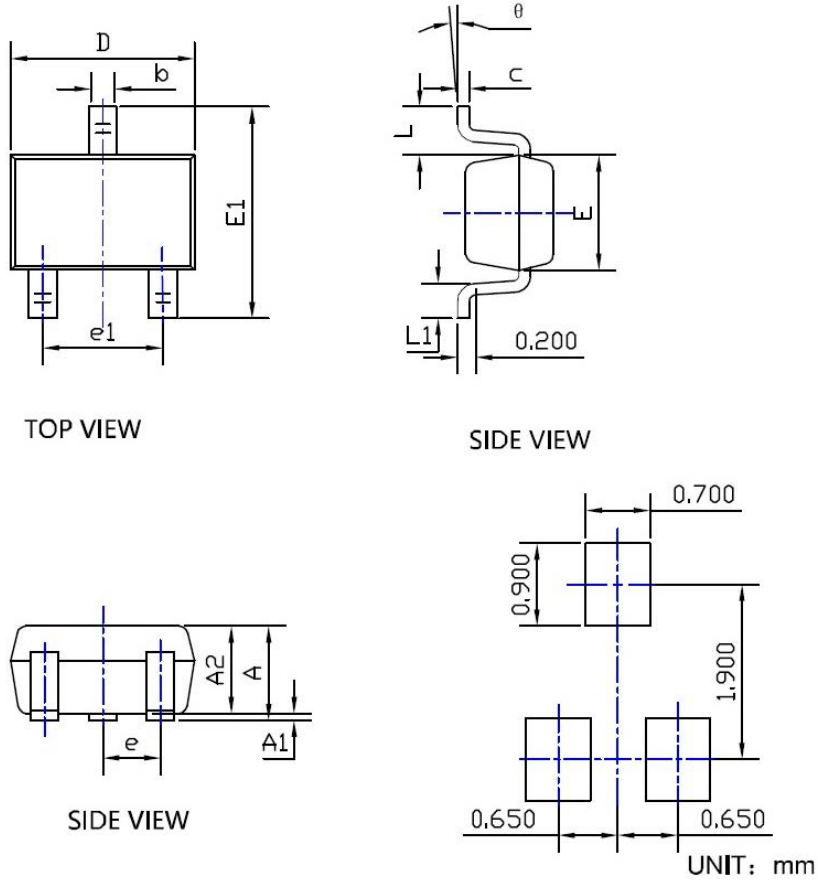


Figure 10 Normalized Maximum Transient Thermal Impedance

SOT-323 Package Outline Dimensions



Symbol	Dimensions (unit:mm)			Symbol	Dimensions (unit:mm)		
	Min	Typ	Max		Min	Typ	Max
A	0.90	1.00	1.10	E ₁	2.15	2.30	2.45
A ₁	--	--	0.10	e	--	0.65	--
A ₂	0.90	0.95	1.00	e ₁	1.20	1.30	1.40
b	0.15	0.30	0.40	L	--	0.525	--
c	0.10	0.17	0.25	L ₁	0.26	0.36	0.46
D	1.80	2.00	2.20	θ	0°		8°
E	1.15	1.25	1.35				