

Features

- Advanced high cell density Trench technology
- Super Low Gate Charge
- Excellent CdV/dt effect decline
- Green Device Available

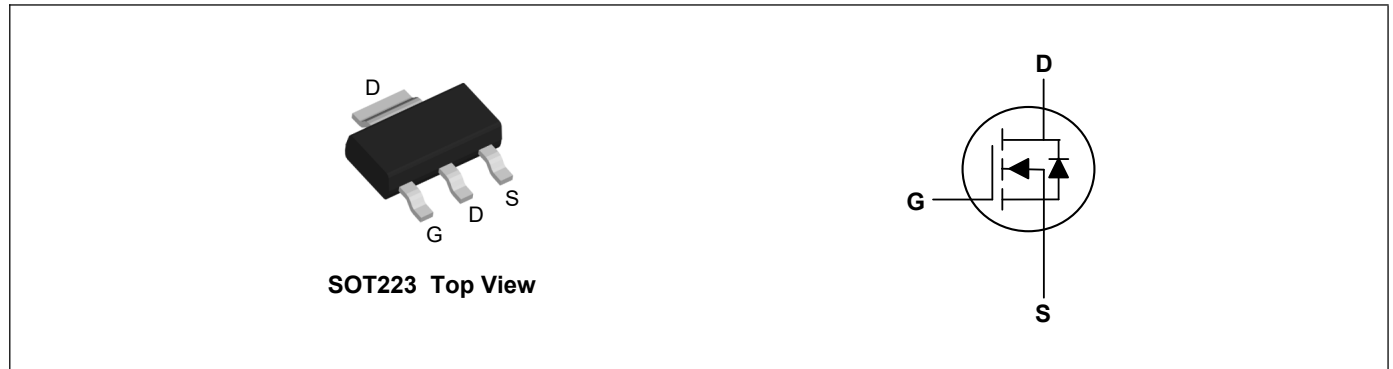
Product Summary



V_{DS}	150	V
I_D	2	A
$R_{DS(ON)}$ (at $V_{GS}=10V$)	300	m Ω

Applications

- High Frequency Point-of-Load Synchronous Buck Converter
- Networking DC-DC Power System
- Power switching application



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

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	150	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	2	A
Pulsed Drain Current ¹	I_{DM}	6	A
Total Power Dissipation	P_D	2	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	$R_{\theta JA}$	---	62.5	$^{\circ}C/W$

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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	150	---	---	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=1.5A$	---	260	300	m Ω
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	1.5	2.0	2.5	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=150V, V_{GS}=0V, T_J=25^\circ\text{C}$	---	---	1	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 100	nA
Forward Transconductance	g_{fs}	$V_{DS}=15V, I_D=1.5A$	---	3	---	S
Total Gate Charge	Q_g	$V_{DS}=75V, V_{GS}=10V, I_D=1.5A$	---	8	---	nC
Gate-Source Charge	Q_{gs}		---	1.4	---	
Gate-Drain Charge	Q_{gd}		---	2.1	---	
Turn-On Delay Time	$T_{d(on)}$	$V_{DD}=75V, I_D=1A, R_L=75\Omega, V_{GS}=10V, R_G=6\Omega$	---	8	---	ns
Rise Time	T_r		---	10	---	
Turn-Off Delay Time	$T_{d(off)}$		---	20	---	
Fall Time	T_f		---	15	---	
Input Capacitance	C_{iss}	$V_{DS}=25V, V_{GS}=0V, f=1\text{MHz}$	---	235	---	pF
Output Capacitance	C_{oss}		---	36	---	
Reverse Transfer Capacitance	C_{rss}		---	20	---	

Drain-Source Diode Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Continuous Source Current ¹	I_S		---	---	2	A
Diode Forward Voltage ²	V_{SD}	$V_{GS}=0V, I_S=2A, T_J=25^\circ\text{C}$	---	---	1.2	V

Note:

1.The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.

2.The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$

Typical Characteristics

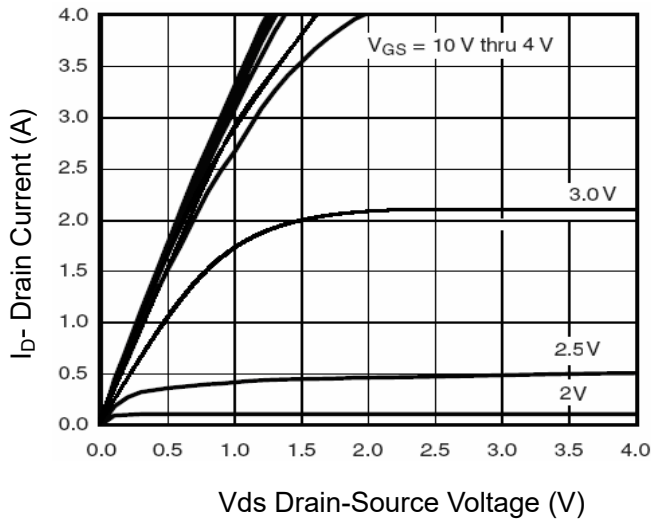


Figure 1 Output Characteristics

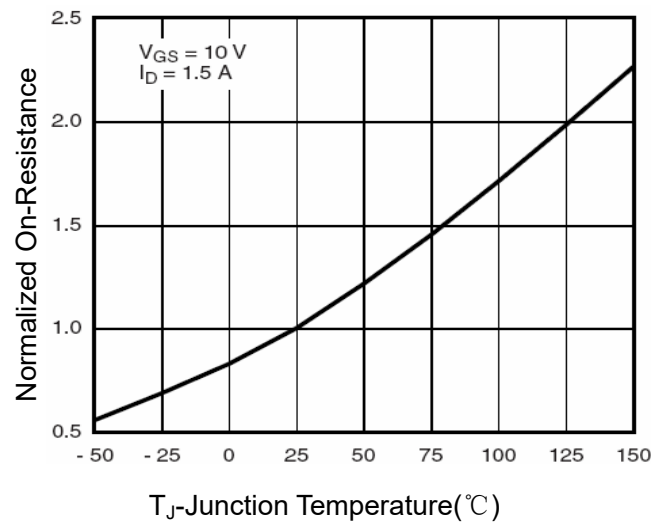


Figure 4 Rds(on)- Junction Temperature

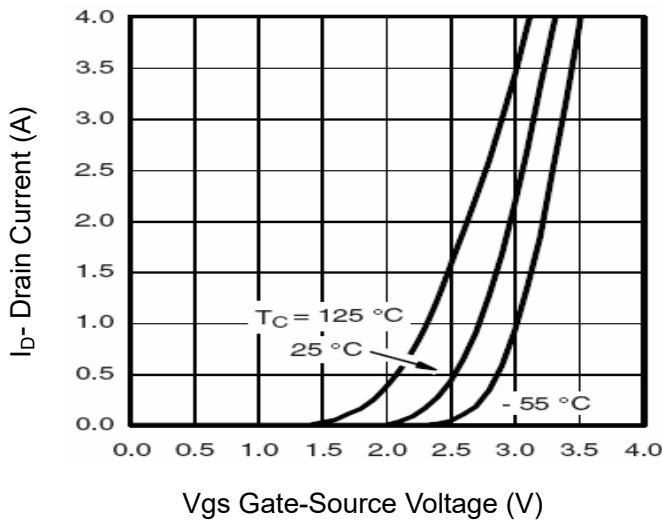


Figure 2 Transfer Characteristics

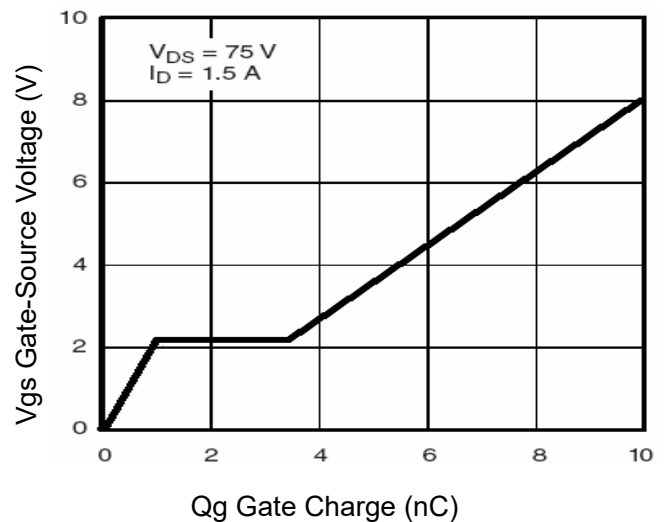


Figure 5 Gate Charge

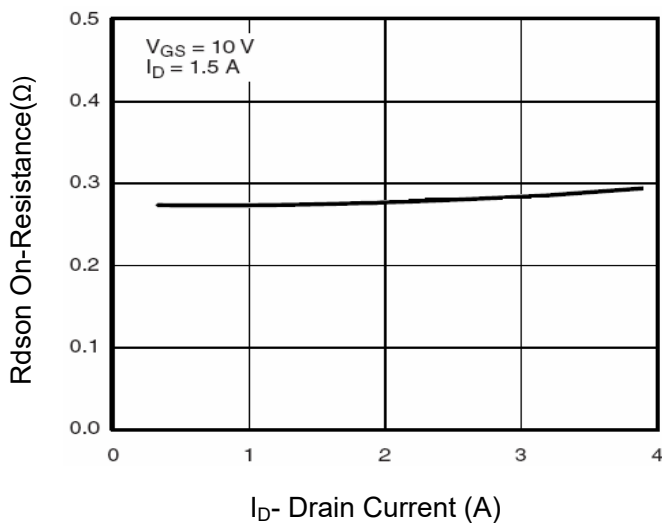


Figure 3 Rds(on)- Drain Current

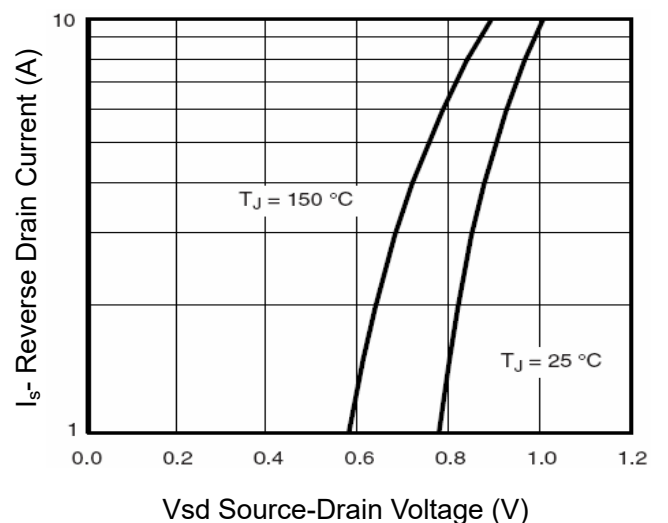


Figure 6 Source- Drain Diode Forward

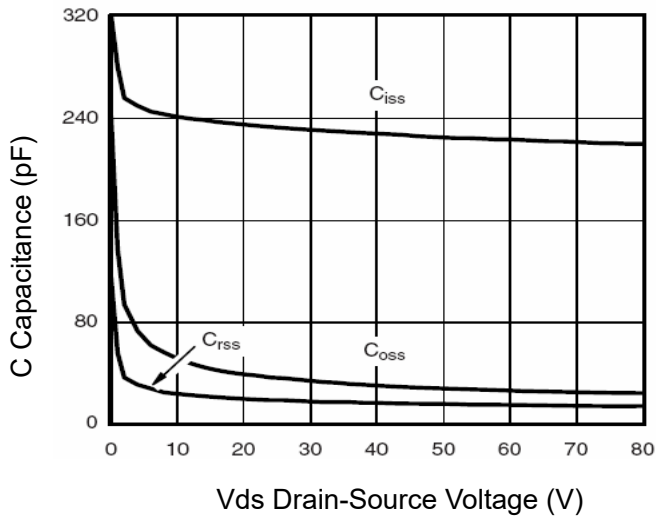


Figure 7 Capacitance vs Vds

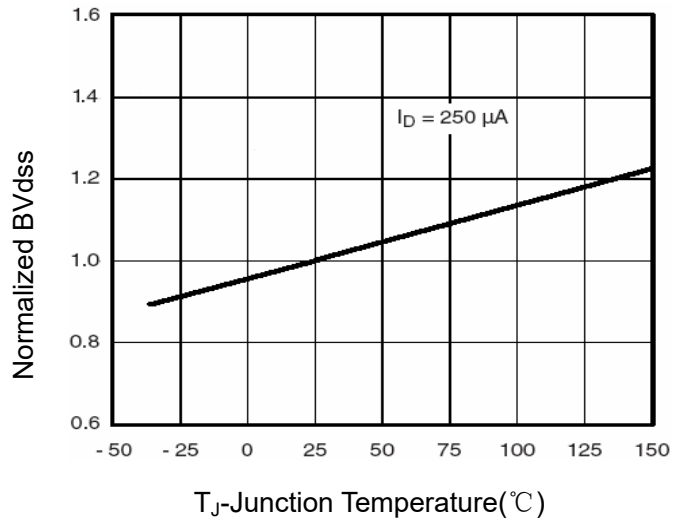


Figure 9 BV_{DSS} vs Junction Temperature

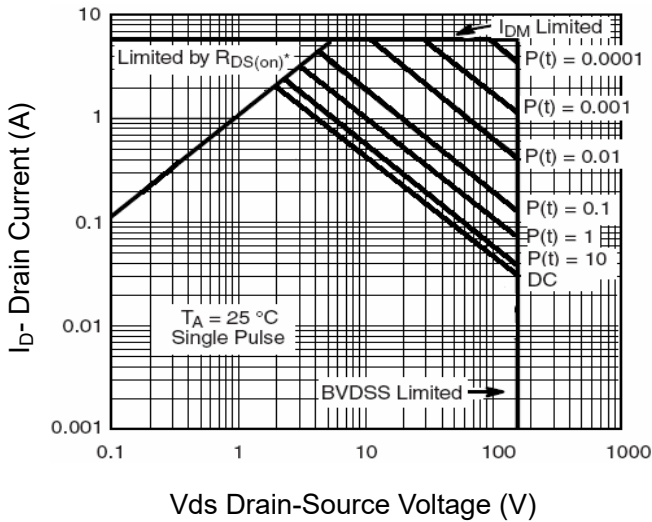


Figure 8 Safe Operation Area

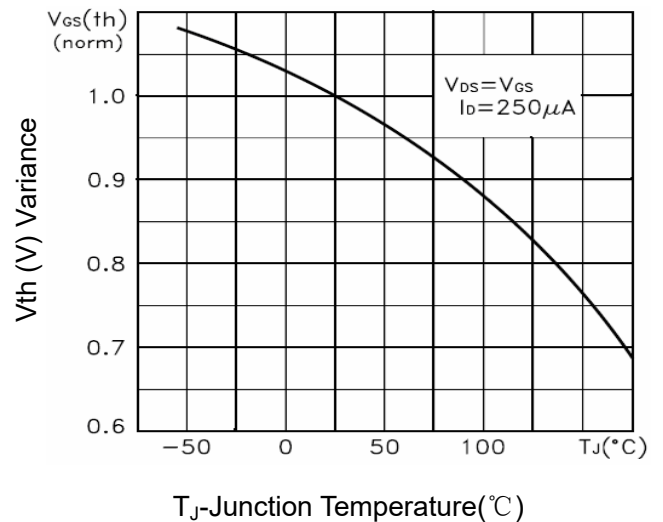


Figure 10 $V_{GS(th)}$ vs Junction Temperature

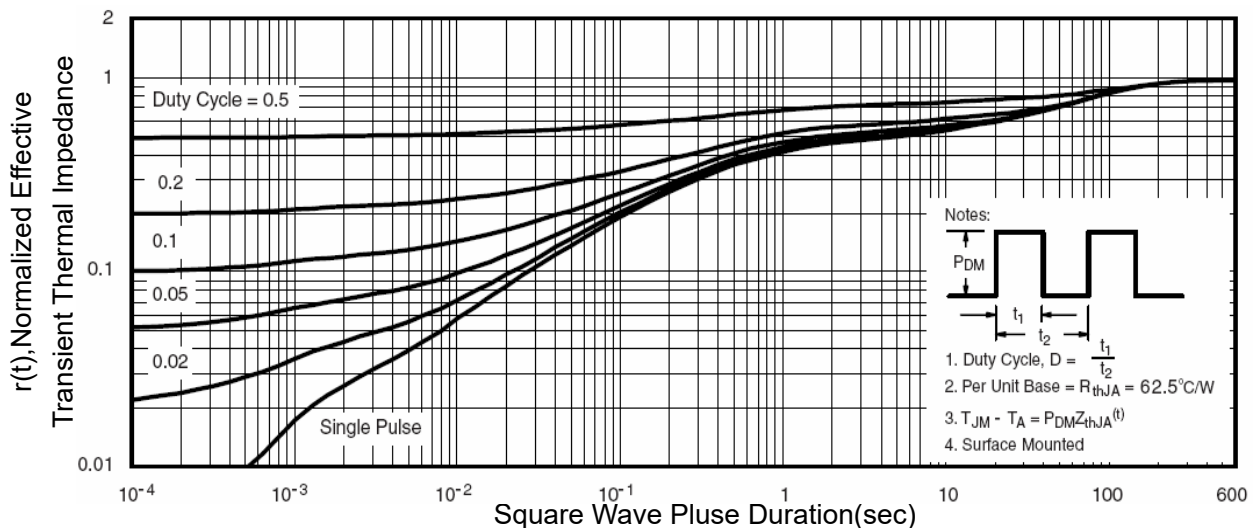
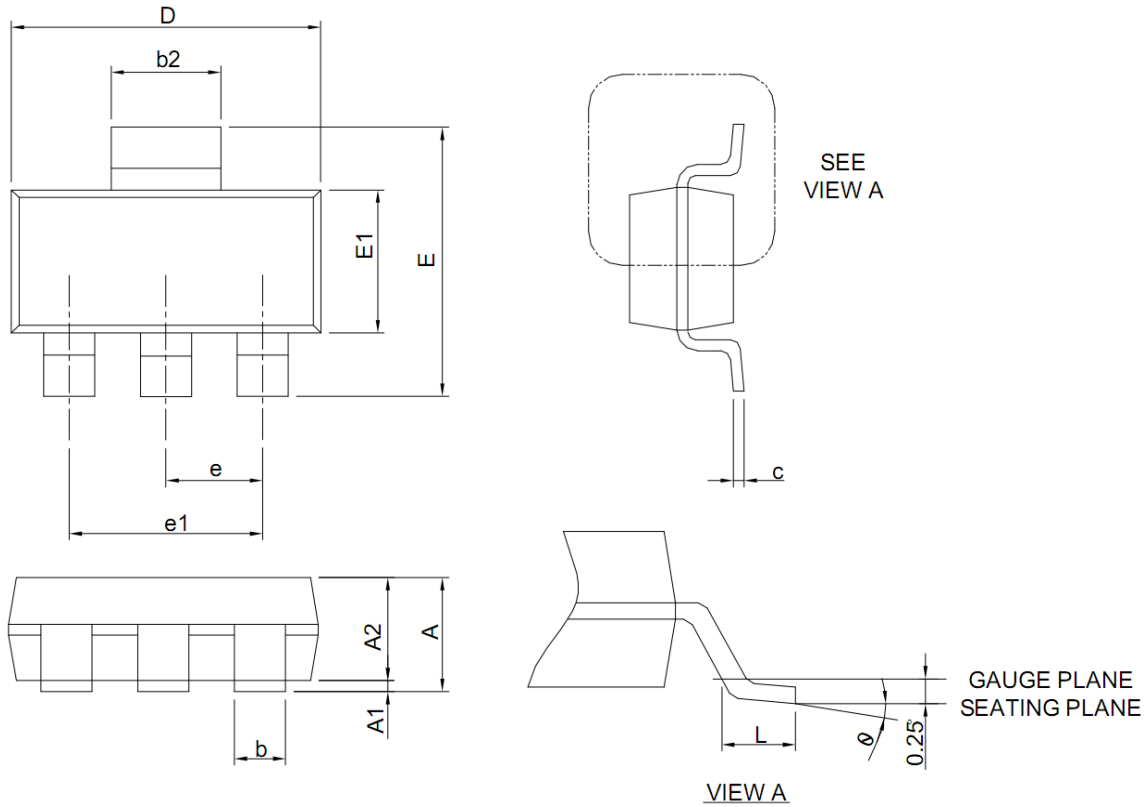


Figure 11 Normalized Maximum Transient Thermal Impedance

SOT223 Package Outline Dimensions



Symbol	Dimensions (unit:mm)			Symbol	Dimensions (unit:mm)		
	Min	Typ	Max		Min	Typ	Max
A	1.50	1.65	1.80	A1	0.02	0.06	0.10
A2	1.50	1.60	1.70	b	0.66	0.72	0.80
b2	2.90	3.00	3.10	c	0.23	0.30	0.35
D	6.30	6.50	6.70	E	6.70	7.00	7.30
E1	3.30	3.50	3.70	e	2.30 REF		
e1	4.60 REF			L	0.75	--	1.15
θ	0°	--	10°				