

Features

- Advanced high cell density Trench technology
- Super Low Gate Charge
- Excellent CdV/dt effect decline
- 100% EAS Guaranteed
- Green Device Available

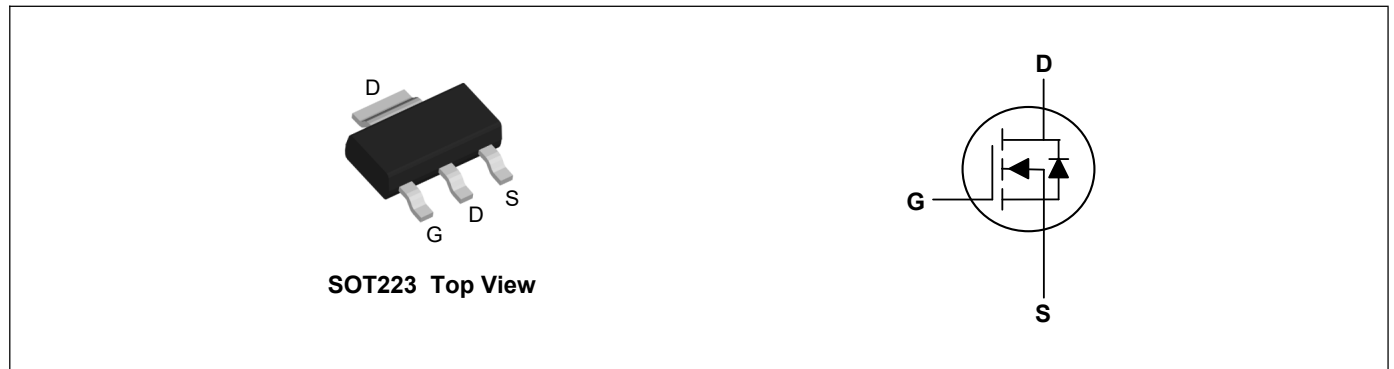
Product Summary



V_{DS}	600	V
I_D	1	A
$R_{DS(ON)}$ (at $V_{GS}=10V$)	8	Ω

Applications

- High Frequency Point-of-Load, Synchronous Buck Converter for MB/NB/UMPC/VGA
- Networking DC-DC Power System
- Load Switch



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

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	600	V
Gate-Source Voltage	V_{GS}	± 30	V
Continuous Drain Current ¹	$I_D@T_C=25^\circ C$	1	A
Continuous Drain Current ¹	$I_D@T_C=100^\circ C$	0.7	A
Pulsed Drain Current ²	I_{DM}	6	A
Single Pulse Avalanche Energy ³	E_{AS}	13	mJ
Total Power Dissipation ⁴	P_D	26	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	$R_{\theta JA}$	---	110	$^\circ C/W$
Thermal Resistance Junction-Case ¹	$R_{\theta JC}$	---	4.7	$^\circ C/W$

Electrical Characteristics (T_J=25°C, unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =1mA	600	---	---	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =0.5A	---	7.2	8.0	Ω
Gate Threshold Voltage	V _{GS(th)}	V _{GS} =V _{DS} , I _D =250μA	2.0	---	4.0	V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =600V, V _{GS} =0V, T _J =25°C	---	---	10	μA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±30V, V _{DS} =0V	---	---	±100	nA
Forward Transconductance	g _{fs}	V _{DS} =50V, I _D =0.5A	---	0.8	---	S
Total Gate Charge	Q _g	V _{DS} =480V, V _{GS} =10V, I _D =1A	---	9	---	nC
Gate-Source Charge	Q _{gs}		---	2	---	
Gate-Drain Charge	Q _{gd}		---	3	---	
Turn-On Delay Time	T _{d(on)}	V _{DS} =300V, V _{GS} =10V, R _G =10Ω, I _D =1A	---	8	---	ns
Rise Time	T _r		---	5	---	
Turn-Off Delay Time	T _{d(off)}		---	14	---	
Fall Time	T _f		---	7	---	
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, F=1.0MZH	---	286	---	pF
Output Capacitance	C _{oss}		---	25	---	
Reverse Transfer Capacitance	C _{rss}		---	5	---	

Drain-Source Diode Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Diode Forward Voltage ²	V _{SD}	V _{GS} =0V, V _S =1.5V	---	---	1.5	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 ≤ 300us , duty cycle ≤ 2%
- 3.The EAS data shows Max. rating . The test condition is V_{DD}=50V,V_{GS}=10V,L=10mH,R_G=25 Ω ,I_{AS}=1.6A.
- 4.The power dissipation is limited by 150°C junction temperature
- 5.The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

Typical Characteristics

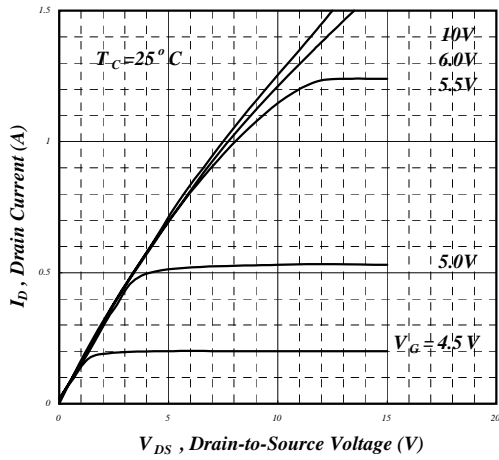


Fig 1. Typical Output Characteristics

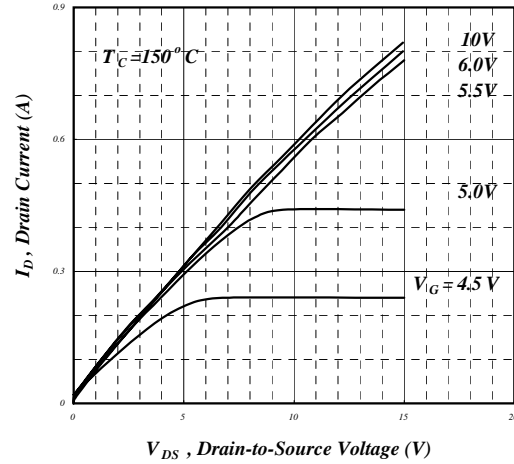


Fig 2. Typical Output Characteristics

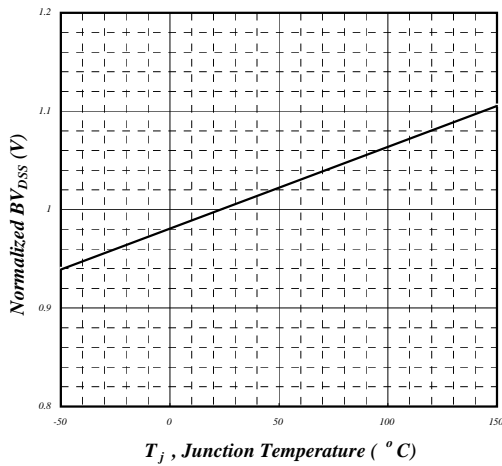


Fig 3. Normalized BV_{DSS} v.s. Junction Temperature

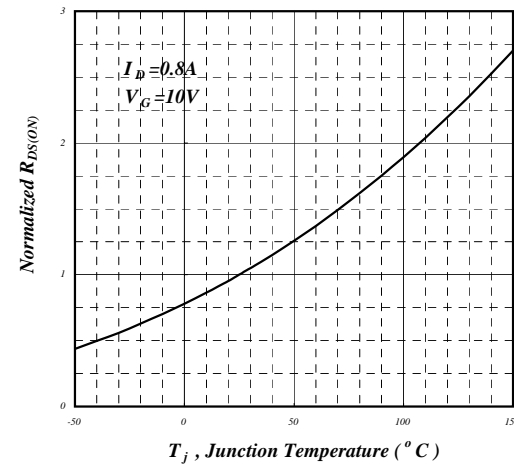


Fig 4. Normalized On-Resistance v.s. Junction Temperature

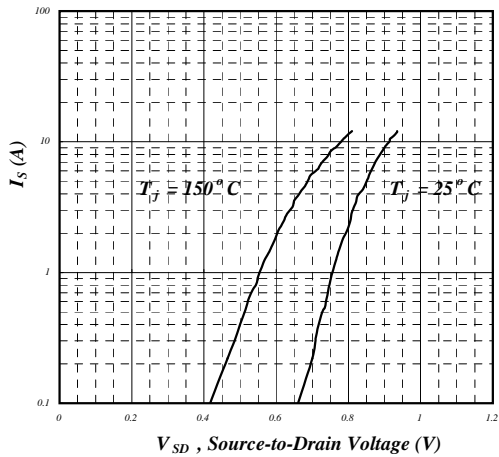


Fig 5. Forward Characteristic of Reverse Diode

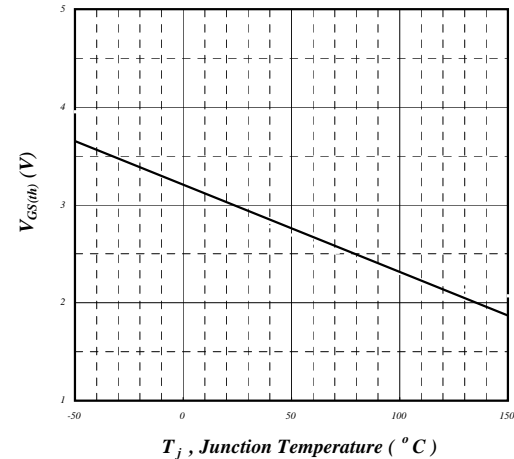


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

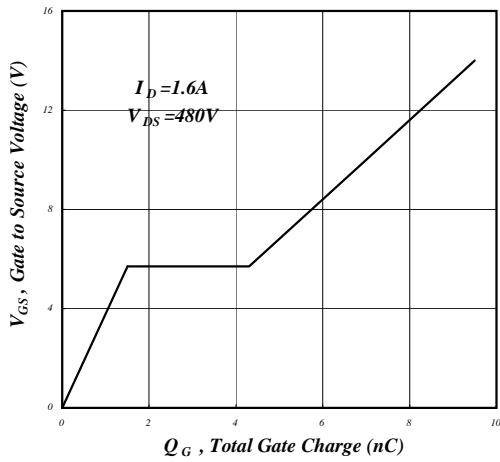


Fig 7. Gate Charge Characteristics

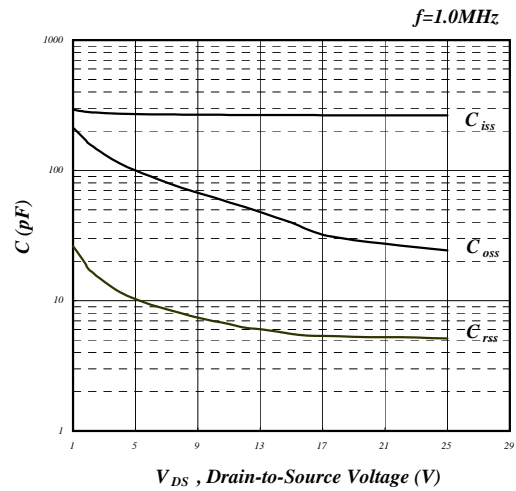


Fig 8. Typical Capacitance Characteristics

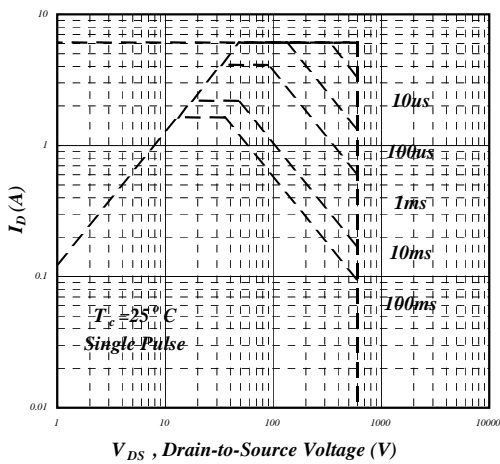


Fig 9. Maximum Safe Operating Area

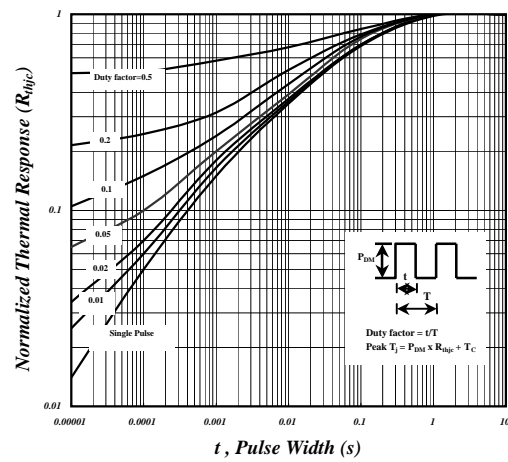


Fig 10. Effective Transient Thermal Impedance

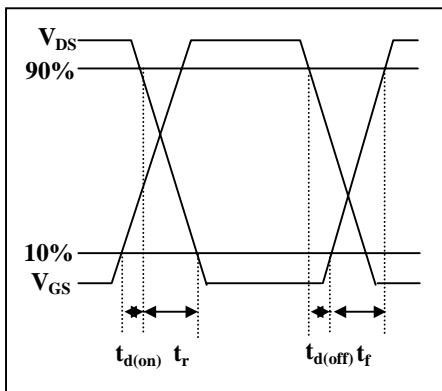


Fig 11. Switching Time Waveform

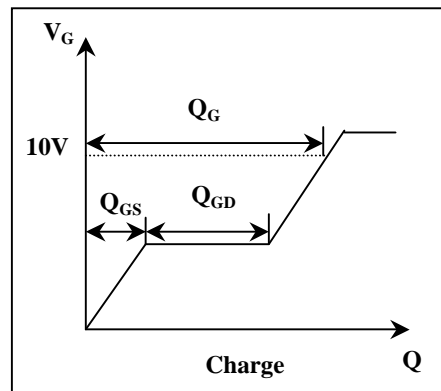
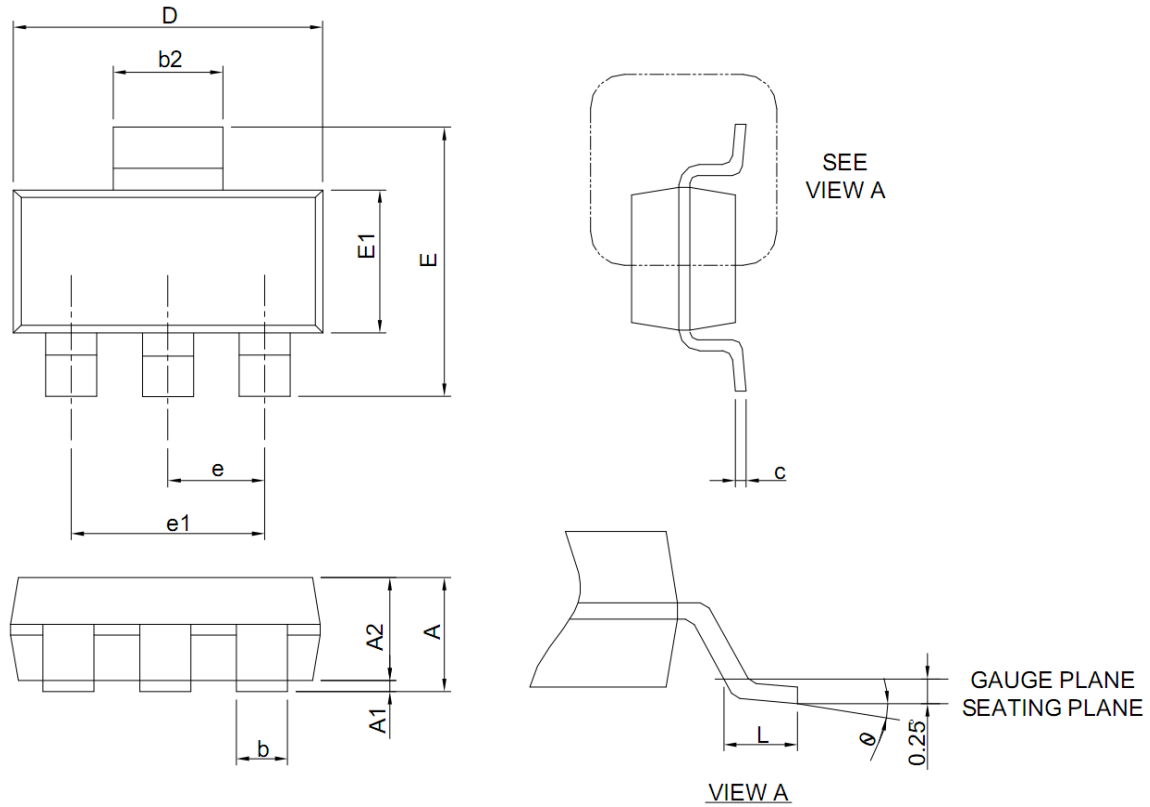


Fig 12. Gate Charge Waveform

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°				