

Features

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

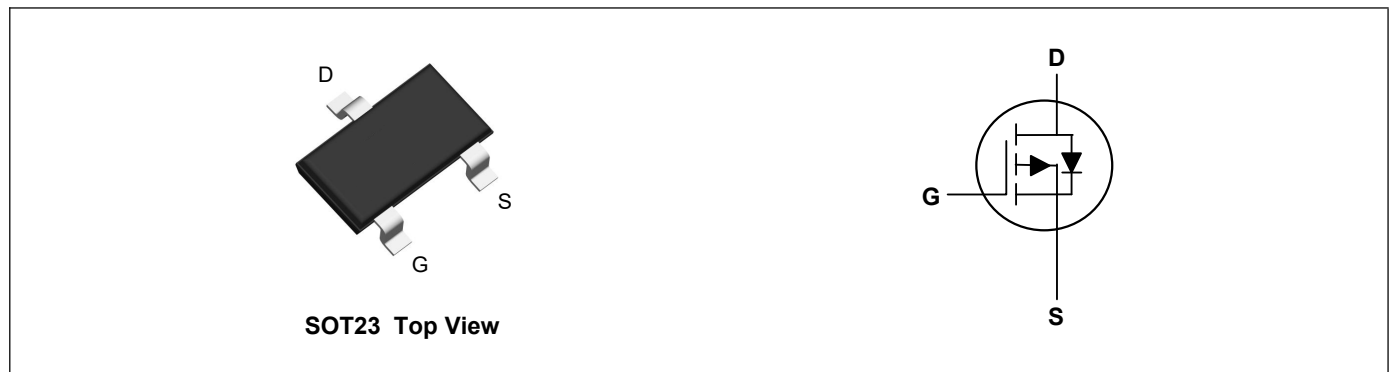
Product Summary



V_{DS}	-60	V
I_D	-2	A
$R_{DS(ON)}$ (at $V_{GS}=-10V$)	165	m Ω

Applications

- High Frequency Point-of-Load, Synchronous Buck Converter
- 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}	-60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ¹	I_D	-2	A
Pulsed Drain Current ²	I_{DM}	-10	A
Total Power Dissipation ³	P_D	1.25	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	$R_{\theta JA}$	---	120	$^{\circ}C/W$

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	---	---	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=-10V, I_D=-2A$	---	158	165	$m\Omega$
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=-250\mu A$	-1.0	-1.9	-3	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=-60V, V_{GS}=0V$	---	---	-1	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 100	nA
Forward Transconductance	g_{fs}	$V_{DS}=-4.5V, I_D=-1A$	---	1.9	---	S
Total Gate Charge	Q_g	$V_{DS}=-30V, V_{GS}=-10V, I_D=-1.25A$	---	5.4	---	nC
Gate-Source Charge	Q_{gs}		---	1.1	---	
Gate-Drain Charge	Q_{gd}		---	1	---	
Turn-On Delay Time	$T_{d(on)}$	$V_{DD}=-30V, V_{GS}=-4.5V, R_G=3\Omega, I_D=-1A$	---	10	---	ns
Rise Time	T_r		---	11	---	
Turn-Off Delay Time	$T_{d(off)}$		---	55	---	
Fall Time	T_f		---	35	---	
Input Capacitance	C_{iss}	$V_{DS}=-30V, V_{GS}=0V, f=1\text{MHz}$	---	210	---	pF
Output Capacitance	C_{oss}		---	28	---	
Reverse Transfer Capacitance	C_{rss}		---	20	---	

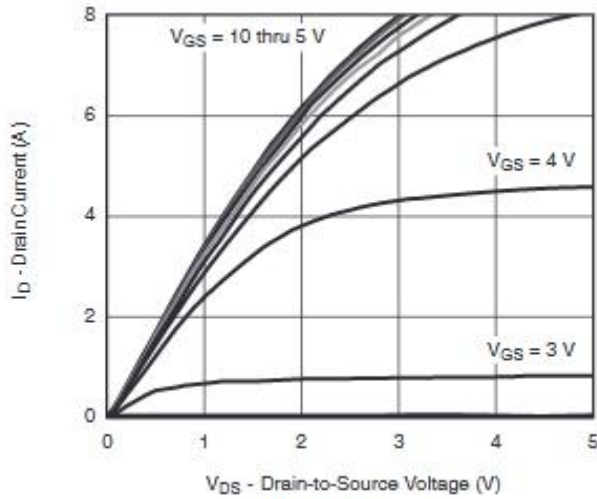
Drain-Source Diode Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Continuous Source Current ¹	I_S		---	---	-1.25	A
Diode Forward Voltage ²	V_{SD}	$V_{GS}=0V, I_S=-1.25A, T_J=25^\circ\text{C}$	---	---	-1.2	V
Reverse Recovery Time	t_{rr}	$I_F=-1.25A, di/dt=100A/\mu s, T_J=25^\circ\text{C}$	---	30	---	nS
Reverse Recovery Charge	Q_{rr}		---	35	---	nC

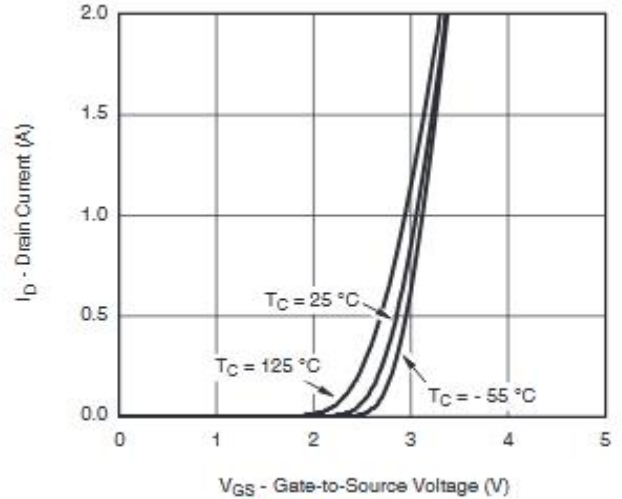
Note:

- 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 $\leq 2\%$
- 3.The power dissipation is limited by 150°C junction temperature

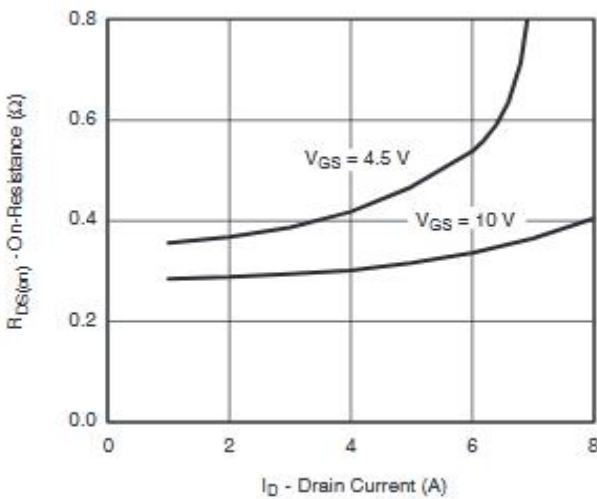
Typical Characteristics



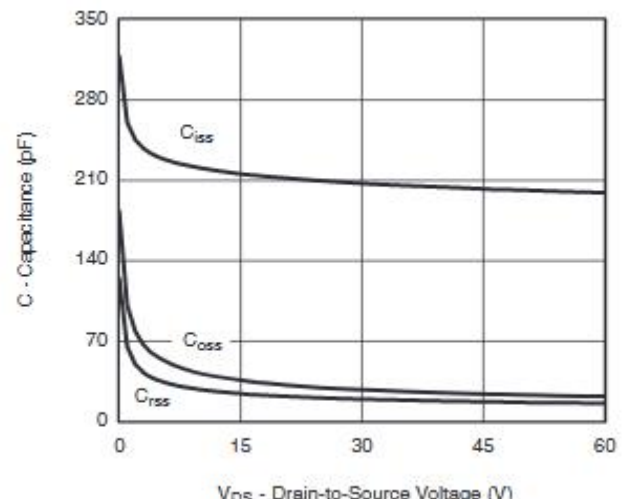
Output Characteristics



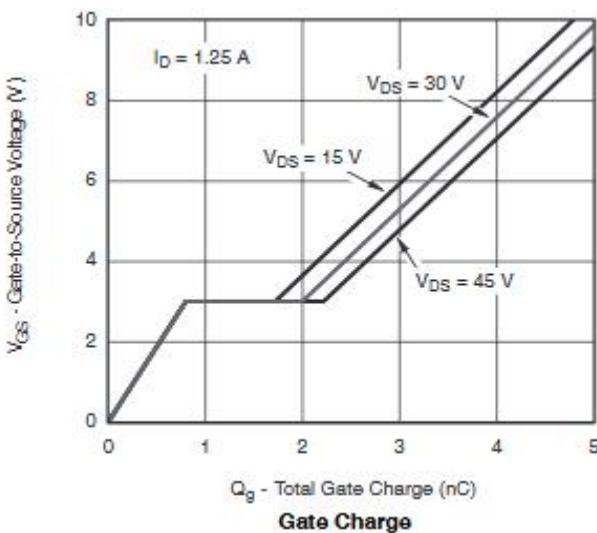
Transfer Characteristics



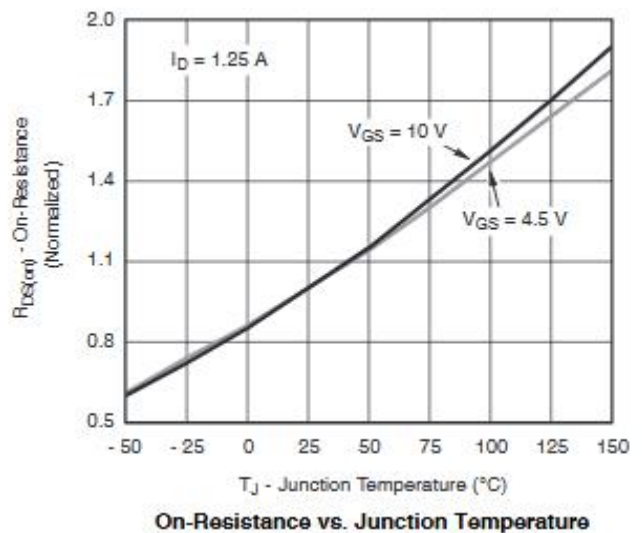
On-Resistance vs. Drain Current and Gate Voltage



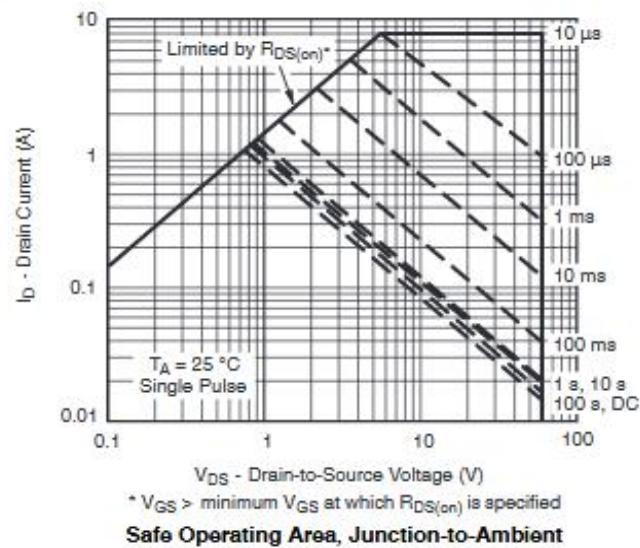
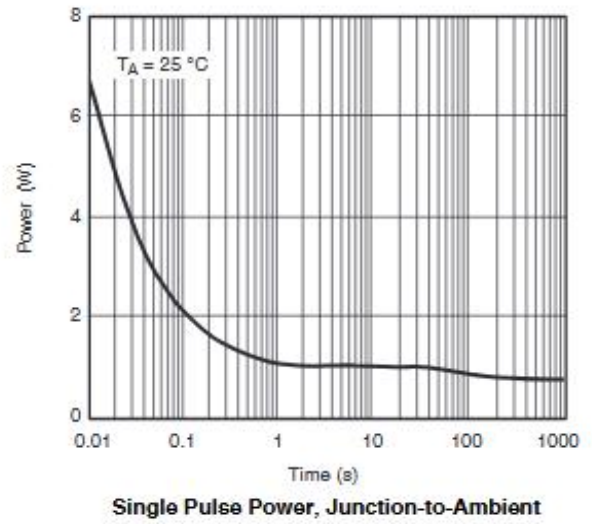
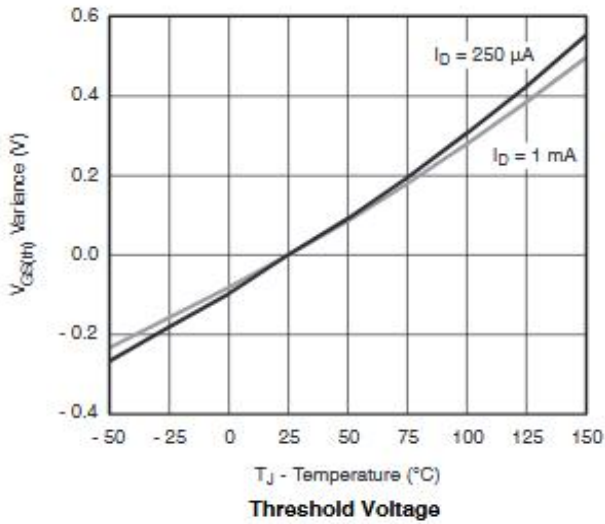
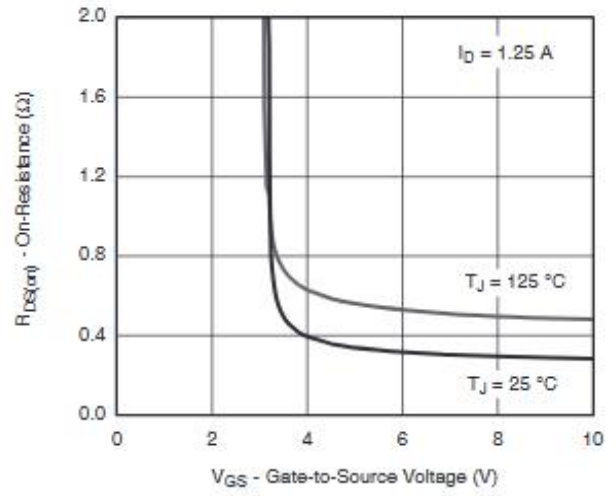
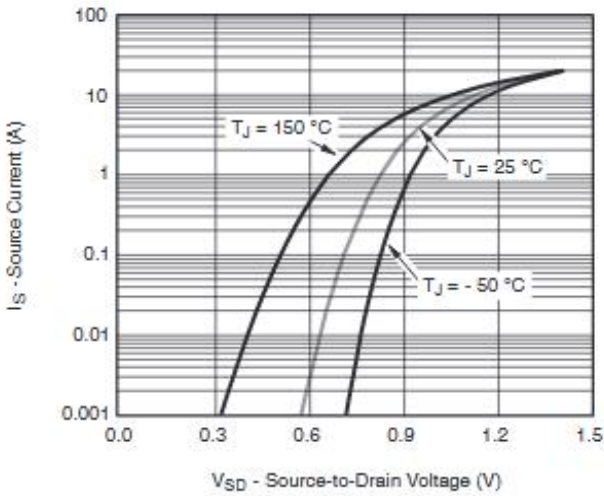
Capacitance



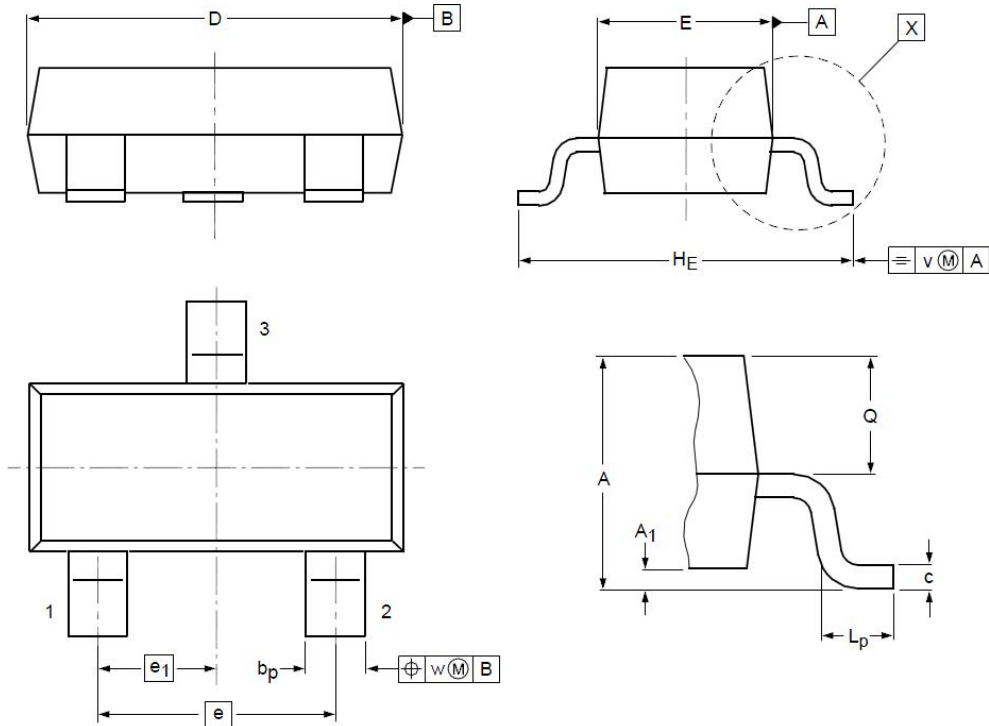
Gate Charge



On-Resistance vs. Junction Temperature



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	--				