

Features

- Fast switching
- Low Gate Charge
- Improved dv/dt capability
- 100% avalanche tested
- Green Device Available

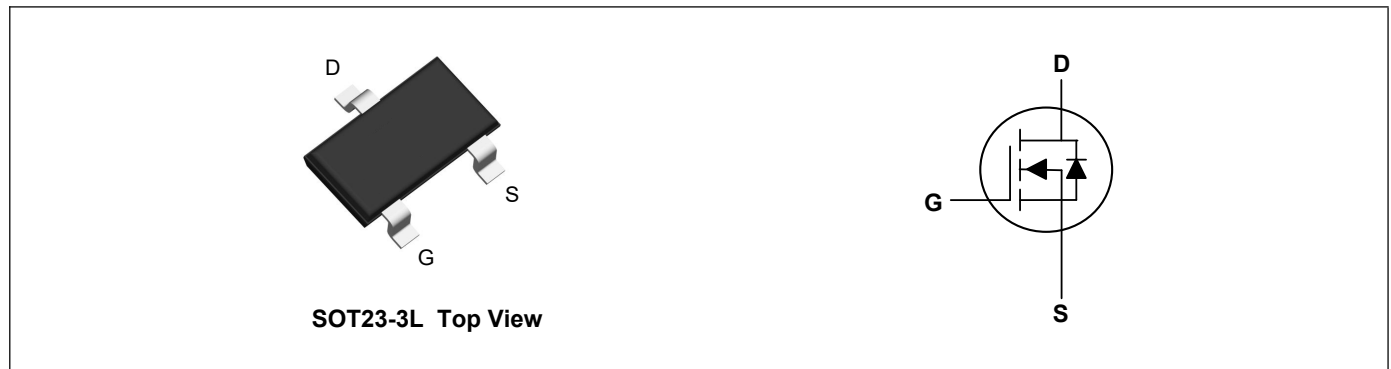
Applications

- Switch Mode Power Supply (SMPS)
- Uninterruptible Power Supply (UPS)
- Power Factor Correction (PFC)

Product Summary



V_{DS}	300	V
I_D	2	A
$R_{DS(ON)}$ (at $V_{GS}=10V$)	4	Ω



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

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	300	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ¹	I_D	2	A
Pulsed Drain Current ²	I_{DM}	12	A
Single Pulse Avalanche Energy ³	E_{AS}	30	mJ
Total Power Dissipation ⁴	P_D	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	$R_{\theta JA}$	---	60	$^\circ C/W$
Thermal Resistance Junction-Case ¹	$R_{\theta JC}$	---	3.5	$^\circ C/W$

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 =250uA	300	---	---	V
Static Drain-Source On-Resistance ²	R _{DS(ON)}	V _{GS} =10V, I _D =1.5A	---	3	4	Ω
Gate Threshold Voltage	V _{GS(th)}	V _{GS} =V _{DS} , I _D =250uA	2	---	4	V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =300V, V _{GS} =0V, T _J =25°C	---	---	1	uA
		V _{DS} =240V, V _{GS} =0V, T _J =125°C	---	---	100	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	---	---	±10	uA
Total Gate Charge	Q _g	V _{DD} =240V, V _{GS} =10V, I _D =2A	---	4.5	---	nC
Gate-Source Charge	Q _{gs}		---	0.7	---	
Gate-Drain Charge	Q _{gd}		---	2	---	
Turn-On Delay Time	T _{d(on)}	V _{DD} =150V, R _G =25Ω, I _D =2A	---	18	---	ns
Rise Time	T _r		---	55	---	
Turn-Off Delay Time	T _{d(off)}		---	60	---	
Fall Time	T _f		---	55	---	
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f=1MHz	---	138	---	pF
Output Capacitance	C _{oss}		---	30	---	
Reverse Transfer Capacitance	C _{rss}		---	5	---	

Drain-Source Diode Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Continuous Source Current ¹	I _S	T _C =25°C	---	---	2	A
Pulsed Source Current	I _{SM}		---	---	12	A
Diode Forward Voltage ²	V _{SD}	V _{GS} =0V, I _S =2A, T _J =25°C	---	---	1.4	V
Reverse Recovery Time	t _{rr}	I _F =2A, V _{GS} =0V di/dt=100A/μs, T _J =25°C	---	230	---	nS
Reverse Recovery Charge	Q _{rr}		---	1.8	---	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 ≤ 300us, duty cycle ≤ 2%
- 3.The EAS data shows Max. rating. The test condition is V_{DD}=50V, V_{GS}=10V
- 4.The power dissipation is limited by 150°C junction temperature

Typical Characteristics

Figure 1. Output Characteristics ($T_J = 25^\circ\text{C}$)

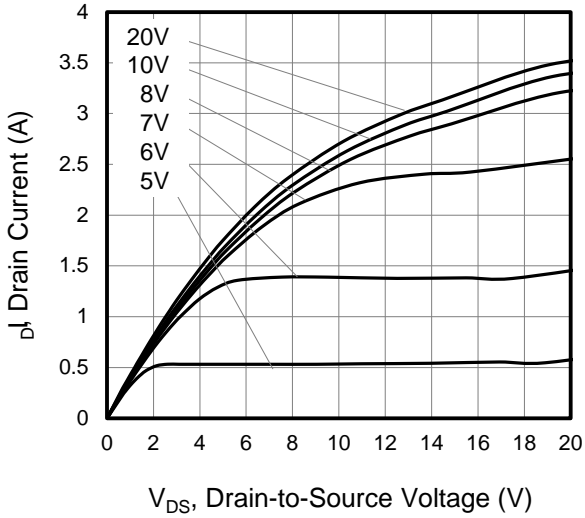


Figure 2. Body Diode Forward Voltage

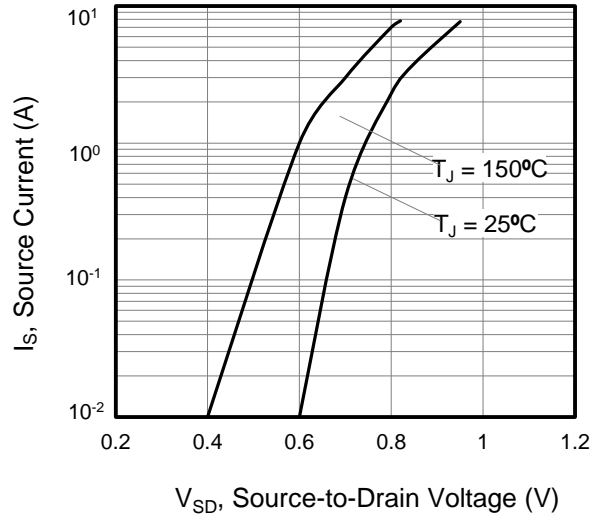


Figure 3. Drain Current vs. Temperature

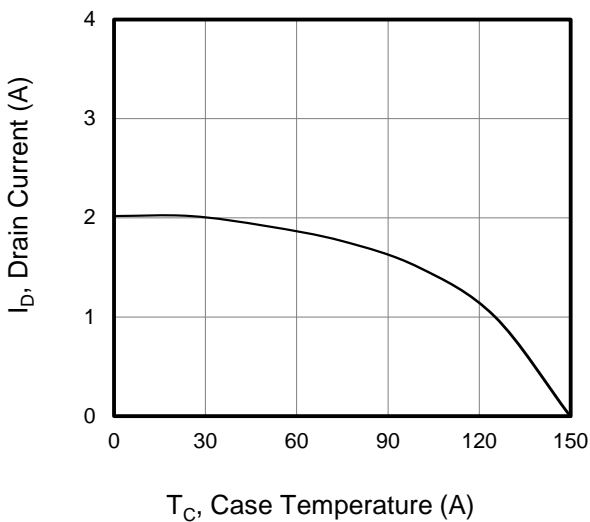


Figure 4. BV_{DSS} Variation vs. Temperature

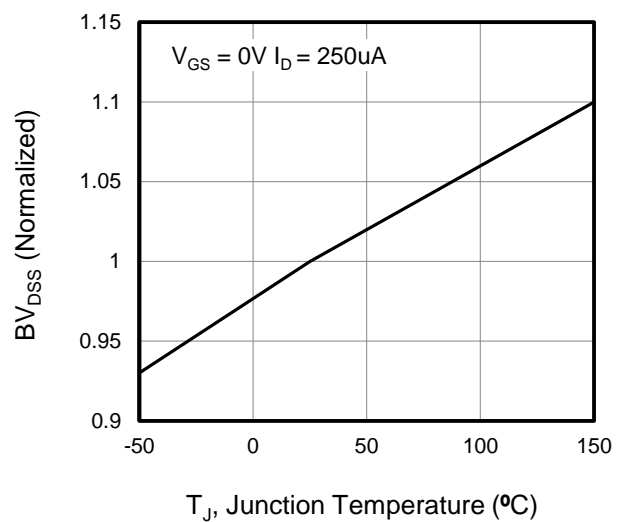


Figure 5. Transfer Characteristics

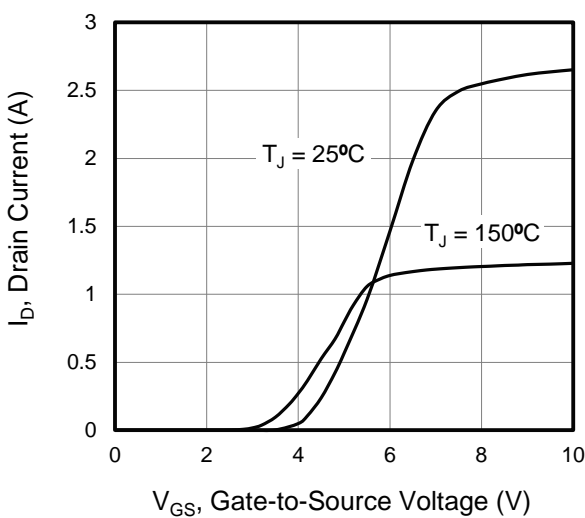


Figure 6. On-Resistance vs. Temperature

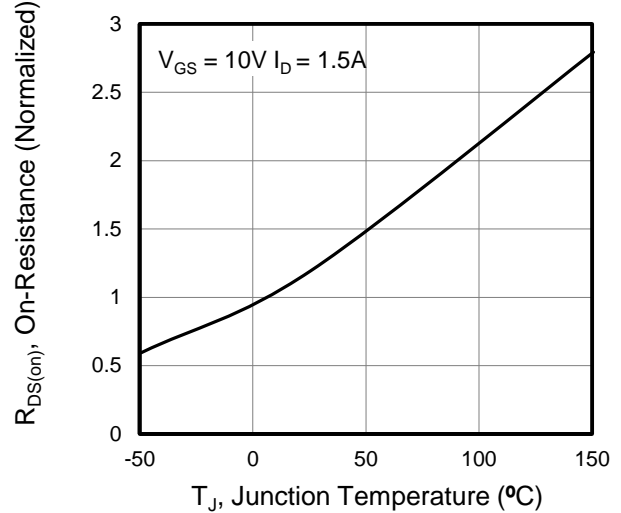


Figure 7. Capacitance

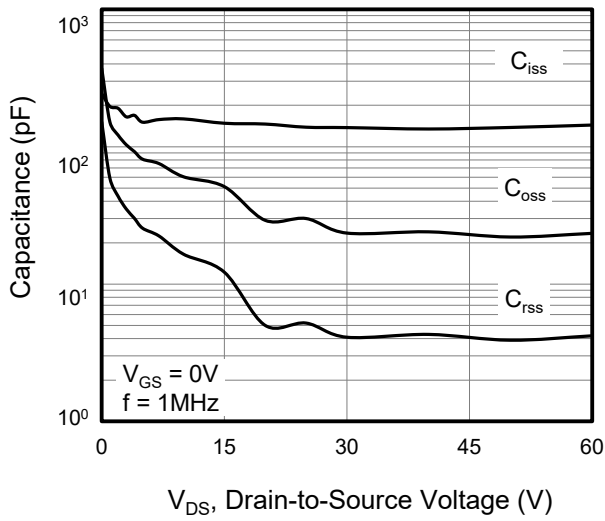


Figure 8. Gate Charge

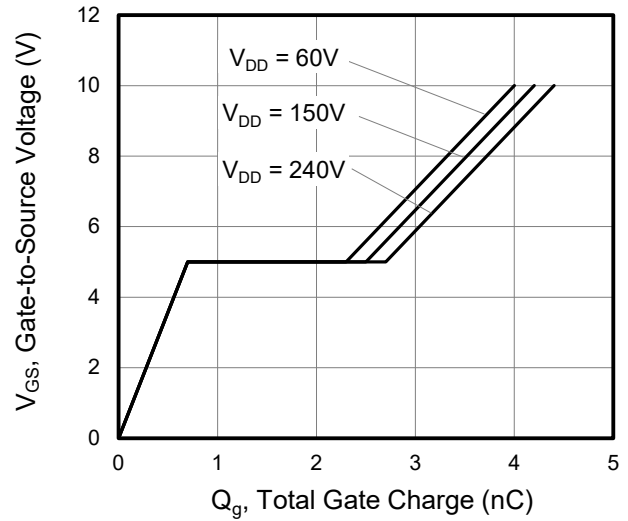
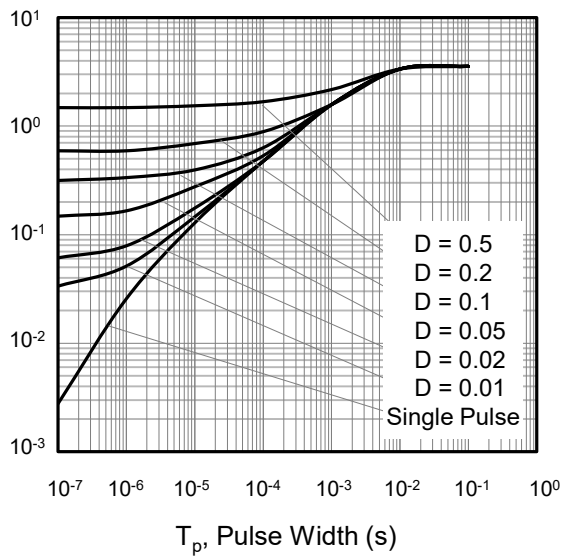
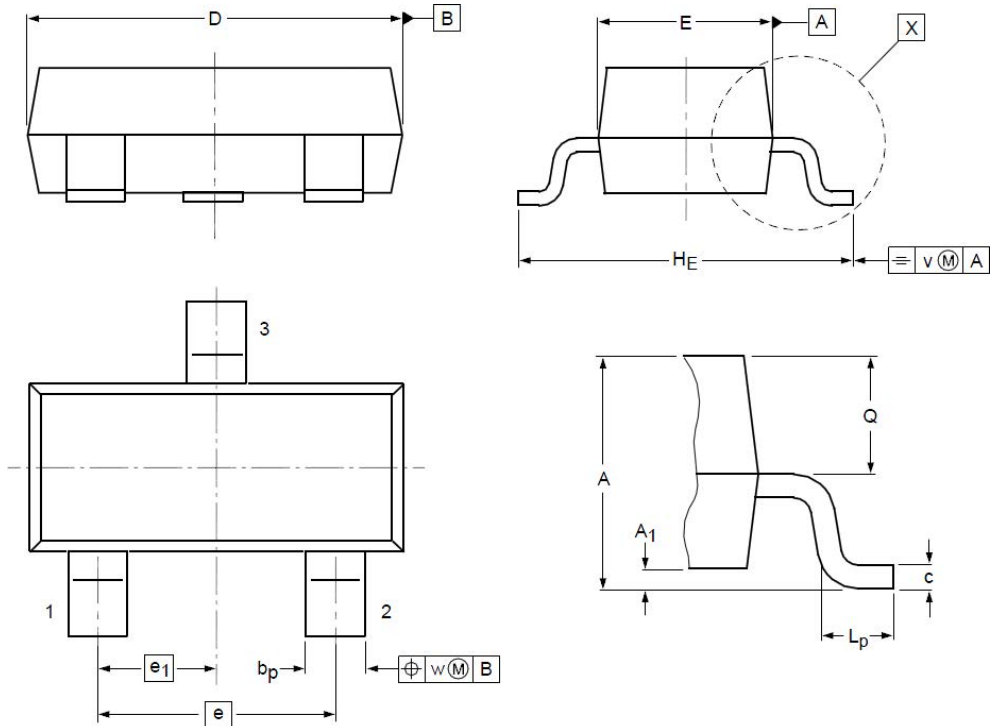


Figure 9. Transient Thermal Impedance



SOT23-3L Package Outline Dimensions



Symbol	Dimensions (unit:mm)			Symbol	Dimensions (unit:mm)		
	Min	Typ	Max		Min	Typ	Max
A	0.90	1.07	1.25	e ₁	--	0.95	--
A ₁	0.01	0.05	0.10	H _E	2.50	2.80	3.00
b _p	0.30	0.40	0.50	L _p	0.30	0.45	0.60
c	0.10	0.15	0.20	Q	0.23	0.28	0.33
D	2.70	2.90	3.10	V	--	0.20	--
E	1.40	1.55	1.75	W	--	0.20	--
e	--	1.90	--				