

Features

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

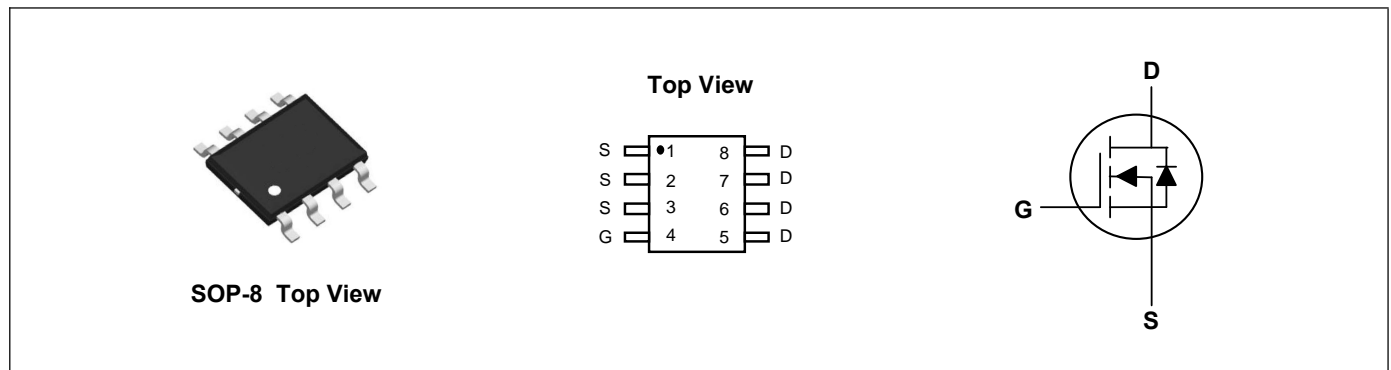
Product Summary



V_{DS}	120	V
I_D	11	A
$R_{DS(ON)}$ (at $V_{GS}=10V$)	12	m Ω

Applications

- High Frequency Point-of-Load, Synchronous Buck Converter
- Networking DC-DC Power System
- Load Switch



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

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	120	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	11	A
Continuous Drain Current	$I_D@T_C=100^\circ\text{C}$	7	A
Pulsed Drain Current	I_{DM}	100	A
Single Pulse Avalanche Energy ³	EAS	320	mJ
Total Power Dissipation	P_D	3.2	W
Storage Temperature Range	T_{STG}	-55 to 175	$^\circ\text{C}$
Operating Junction Temperature Range	T_J	-55 to 175	$^\circ\text{C}$

Thermal Characteristics

Parameter	Symbol	Typ	Max	Unit
Thermal Resistance Junction-Case ¹	$R_{\theta JC}$	---	23	$^\circ\text{C/W}$

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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	120	---	---	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=10A$	---	10	12	$m\Omega$
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	1.0	1.7	2.5	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=120V, V_{GS}=0V, T_J=25^{\circ}\text{C}$	---	---	1	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 100	nA
Forward Transconductance	g_{fs}	$V_{DS}=5V, I_D=10A$	---	40	---	S
Total Gate Charge	Q_g	$V_{DS}=60V, V_{GS}=10V, I_D=10A$	---	37	---	nC
Gate-Source Charge	Q_{gs}		---	14	---	
Gate-Drain Charge	Q_{gd}		---	8	---	
Turn-On Delay Time	$T_{d(on)}$	$V_{DD}=50V, I_D=10A, V_{GS}=10V, R_G=3\Omega$	---	11	---	ns
Rise Time	T_r		---	7.5	---	
Turn-Off Delay Time	$T_{d(off)}$		---	26	---	
Fall Time	T_f		---	4	---	
Input Capacitance	C_{iss}	$V_{DS}=60V, V_{GS}=0V, f=1\text{MHz}$	---	2500	---	pF
Output Capacitance	C_{oss}		---	273	---	
Reverse Transfer Capacitance	C_{rss}		---	27	---	

Drain-Source Diode Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Continuous Source Current ²	I_S		---	---	11	A
Diode Forward Voltage ¹	V_{SD}	$V_{GS}=0V, I_F=10A, T_J=25^{\circ}\text{C}$	---	---	1.2	V
Reverse Recovery Time	t_{rr}	$I_F=I_S, di/dt=100A/\mu s, T_J=25^{\circ}\text{C}$	---	58	---	nS
Reverse Recovery Charge	Q_{rr}		---	149	---	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. ESD condition: $T_J=25^{\circ}\text{C}, V_{DD}=50V, V_{GS}=10V, L=0.5\text{mH}, R_G=25\Omega$

Typical Characteristics

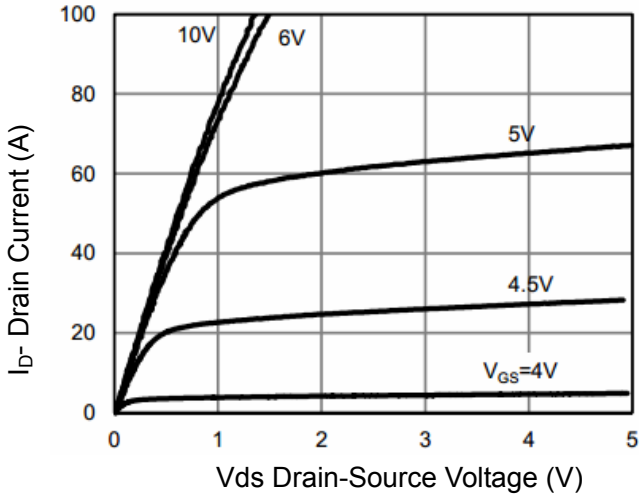


Figure 1 Output Characteristics

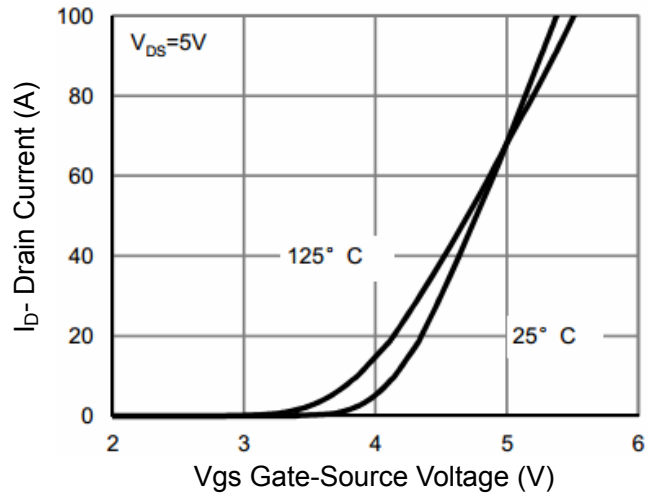


Figure 2 Transfer Characteristics

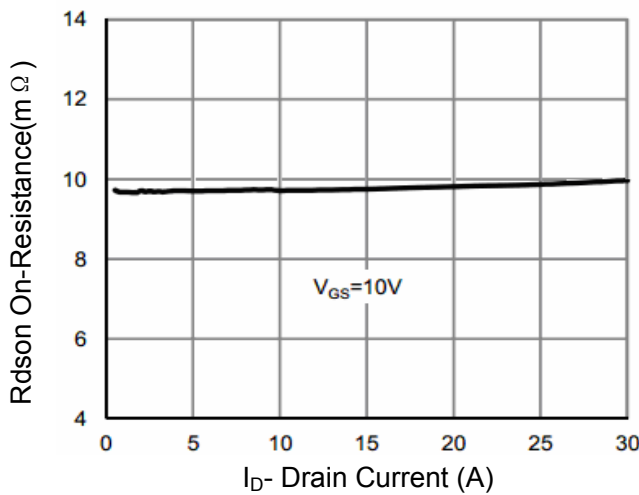


Figure 3 Rdson- Drain Current

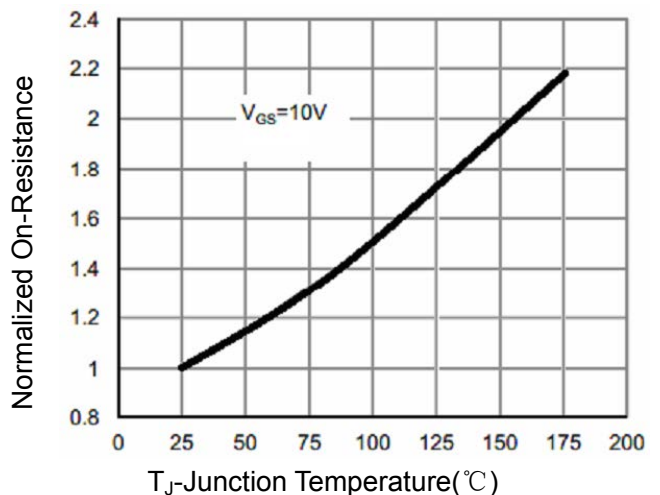


Figure 4 Rdson-Junction Temperature

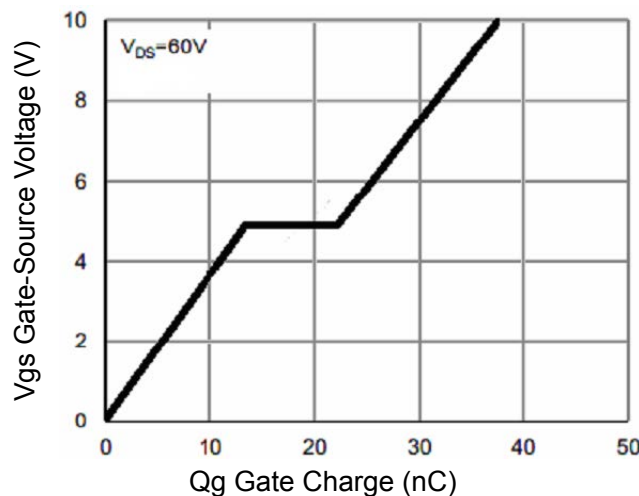


Figure 5 Gate Charge

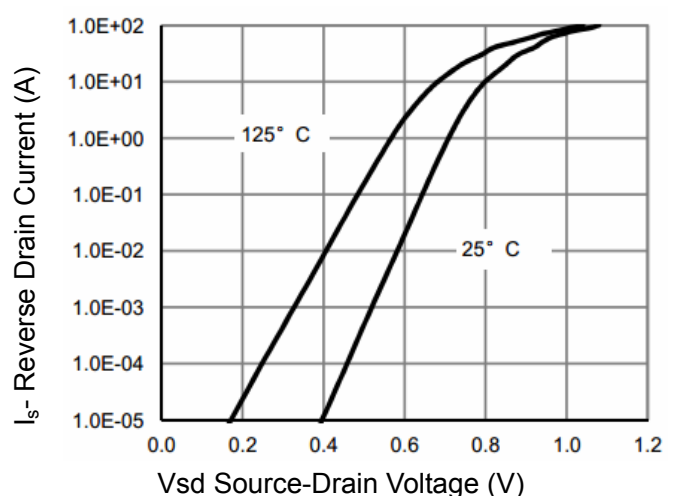


Figure 6 Source- Drain Diode Forward

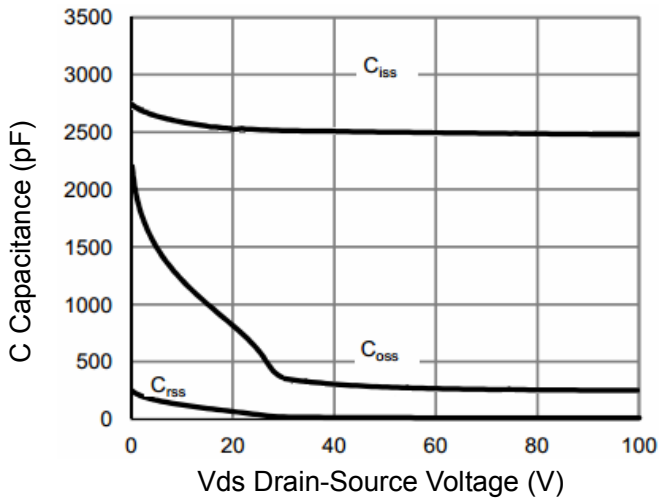


Figure 7 Capacitance vs Vds

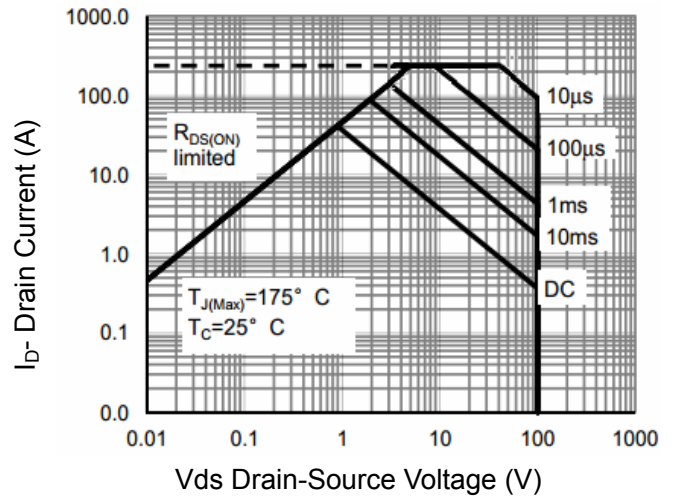


Figure 8 Safe Operation Area

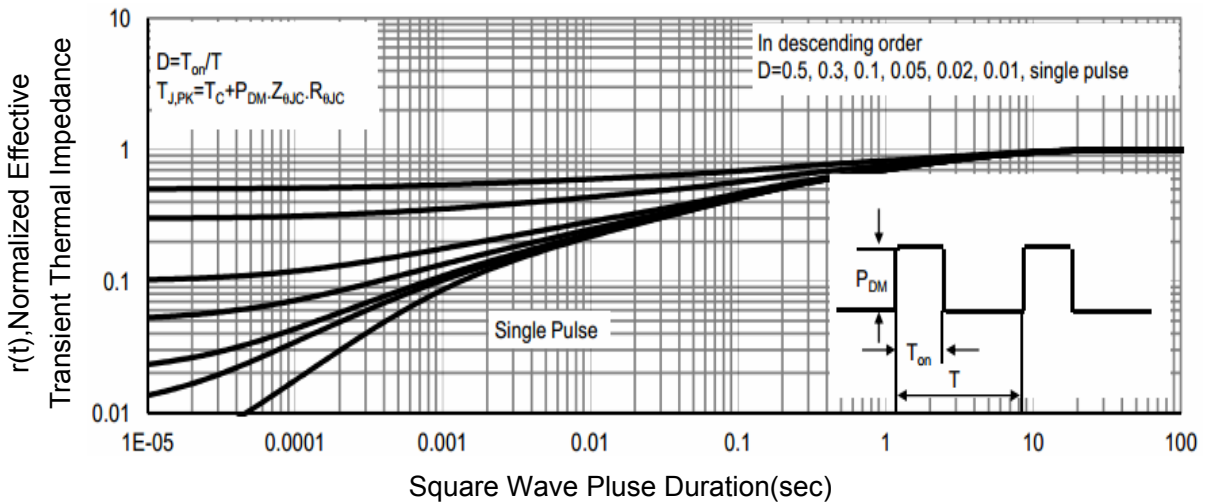
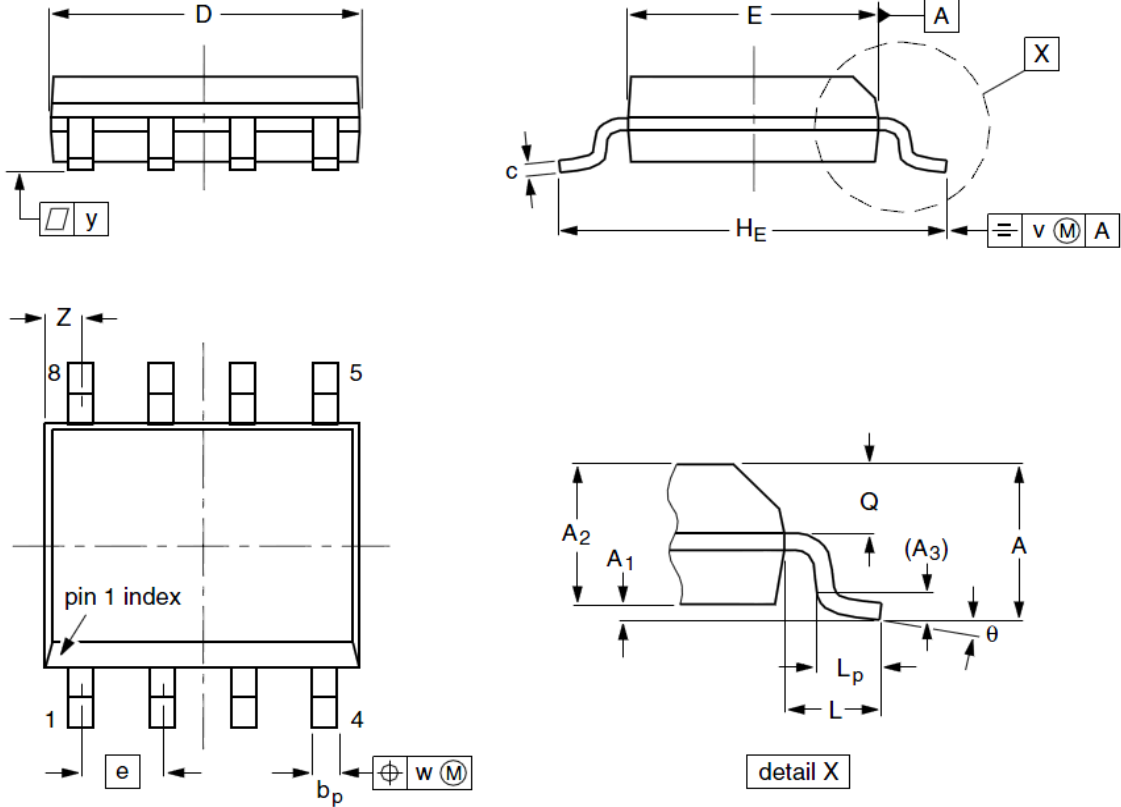


Figure 9 Normalized Maximum Transient Thermal Impedance

SOP-8 Package Outline Dimensions



Symbol	Dimensions (unit:mm)			Symbol	Dimensions (unit:mm)		
	Min	Typ	Max		Min	Typ	Max
A	1.35	1.55	1.75	A₁	0.10	0.18	0.25
A₂	1.25	1.45	1.65	A₃	--	0.25	--
b_p	0.36	0.42	0.51	c	0.19	0.22	0.25
D	4.70	4.92	5.10	E	3.80	3.90	4.00
e	--	1.27	--	H_E	5.80	6.00	6.20
L	--	1.05	--	L_p	0.40	0.68	1.00
Q	0.60	0.65	0.73	v	--	0.25	--
w	--	0.25	--	y	--	0.10	--
Z	0.30	0.50	0.70	θ	0°		8°