

Features

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

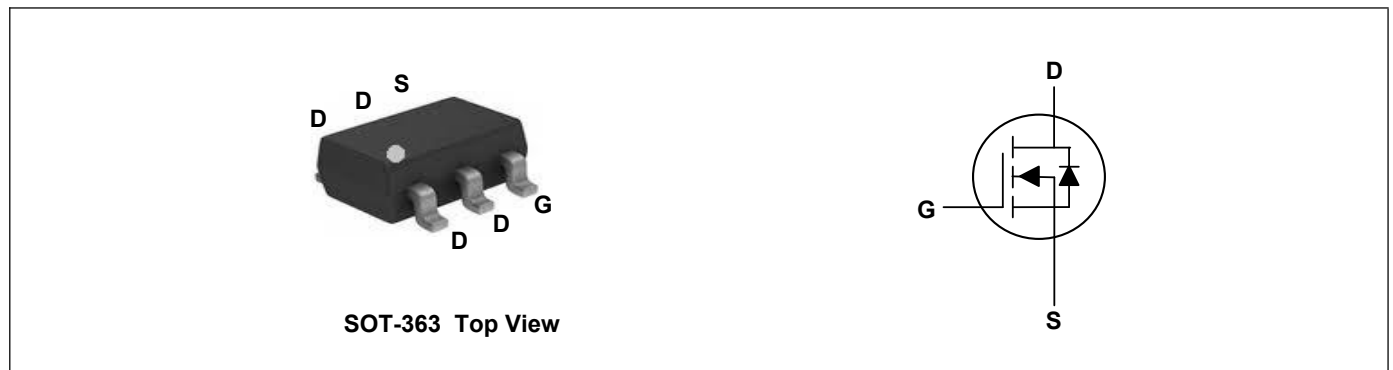
Product Summary



V_{DS}	110	V
I_D	3	A
$R_{DS(ON)}$ (at $V_{GS}=10V$)	230	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}	110	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	3	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	$R_{\theta JA}$	---	100	$^{\circ}C/W$

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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	110	---	---	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=1A$	---	200	230	m Ω
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	1.2	---	2.5	V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=110V, V_{GS}=0V, T_A=25^\circ\text{C}$	---	---	1	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 100	nA
Forward Transconductance	g_{fs}	$V_{DS}=5V, I_D=1A$	1	---	---	S
Total Gate Charge	Q_g	$V_{DS}=50V, V_{GS}=10V, I_D=1.3A$	---	5.2	---	nC
Gate-Source Charge	Q_{gs}		---	0.75	---	
Gate-Drain Charge	Q_{gd}		---	1.4	---	
Turn-On Delay Time	$T_{d(on)}$	$V_{DD}=50V, V_{GS}=10V, R_G=1\Omega, I_D=1.3A, R_L=39\Omega$	---	6	---	ns
Rise Time	T_r		---	10	---	
Turn-Off Delay Time	$T_{d(off)}$		---	10	---	
Fall Time	T_f		---	6	---	
Input Capacitance	C_{iss}	$V_{DS}=50V, V_{GS}=0V, f=1\text{MHz}$	---	190	---	pF
Output Capacitance	C_{oss}		---	22	---	
Reverse Transfer Capacitance	C_{rss}		---	13	---	

Drain-Source Diode Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Continuous Source Current ¹	I_S	$T_A=25^\circ\text{C}$	---	---	2	A
Diode Forward Voltage ²	V_{SD}	$V_{GS}=0V, I_S=1A, T_J=25^\circ\text{C}$	---	---	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 $\leq 2\%$
3. The power dissipation is limited by 150 $^\circ\text{C}$ junction temperature

Typical Characteristics

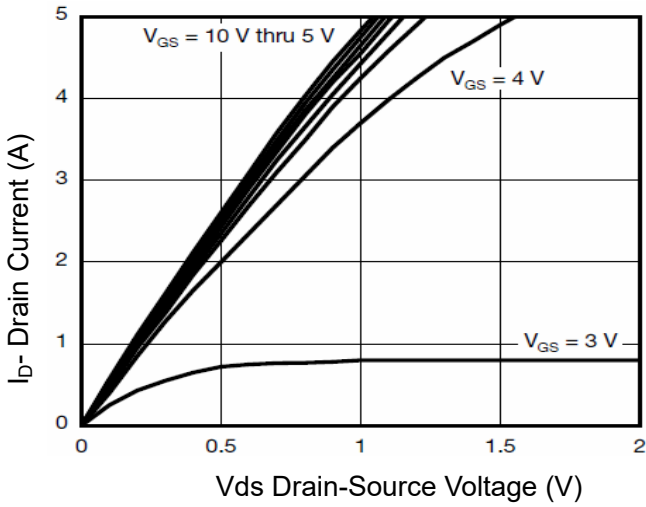


Figure 1 Output Characteristics

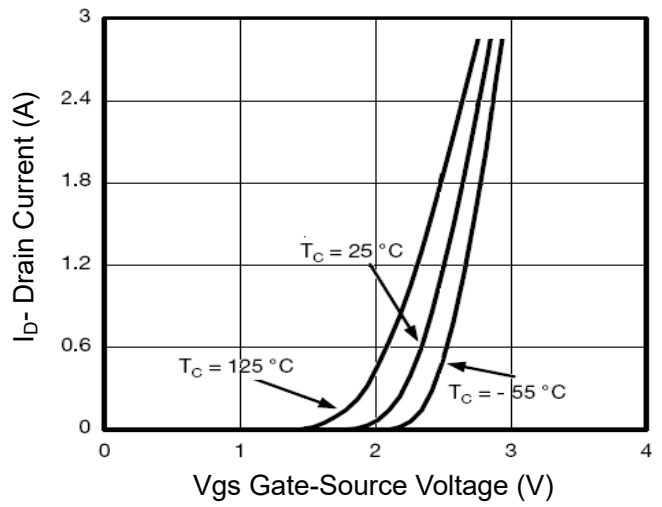


Figure 2 Transfer Characteristics

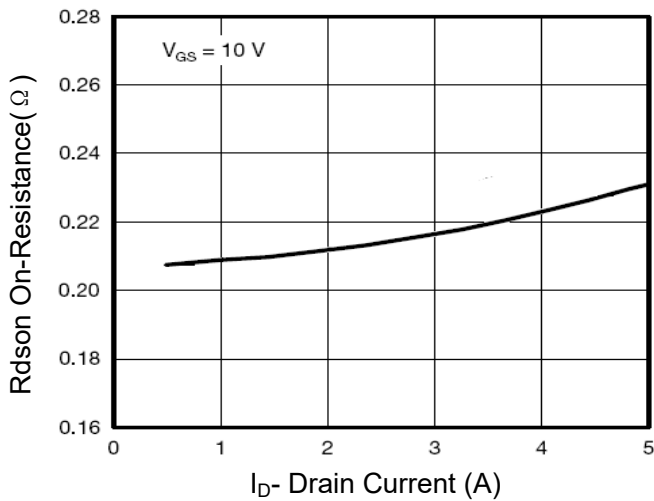


Figure 3 Rdson- Drain Current

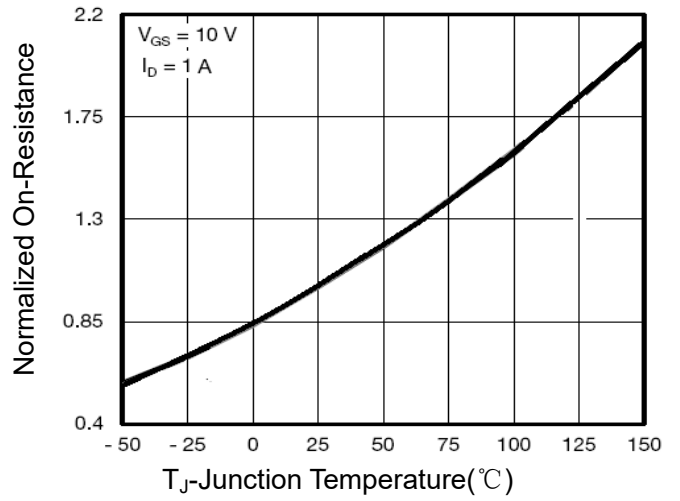


Figure 4 Rdson-Junction Temperature

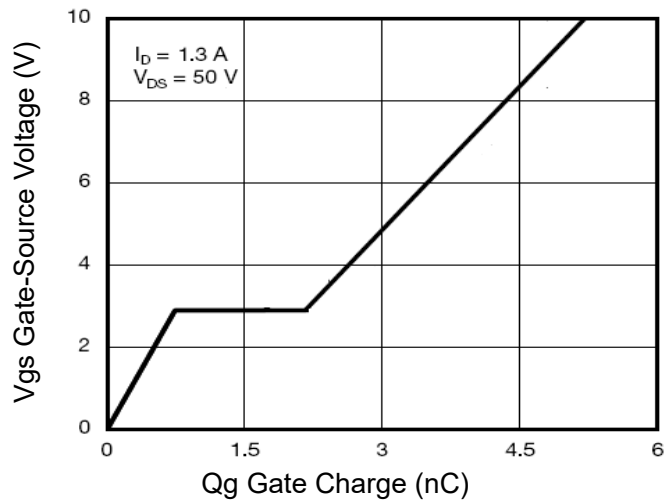


Figure 5 Gate Charge

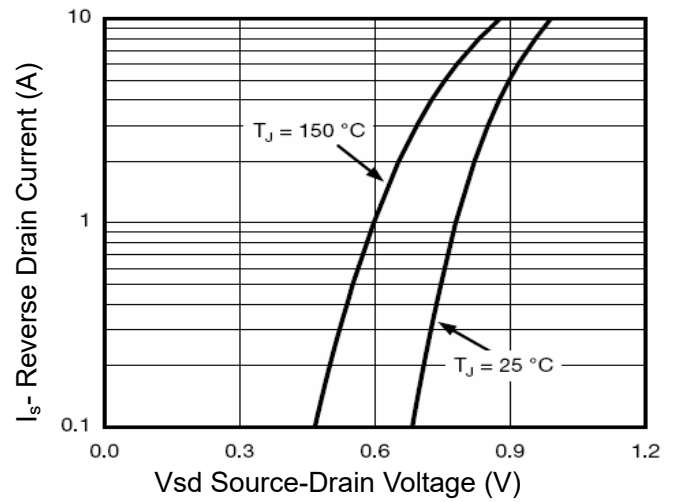


Figure 6 Source- Drain Diode Forward

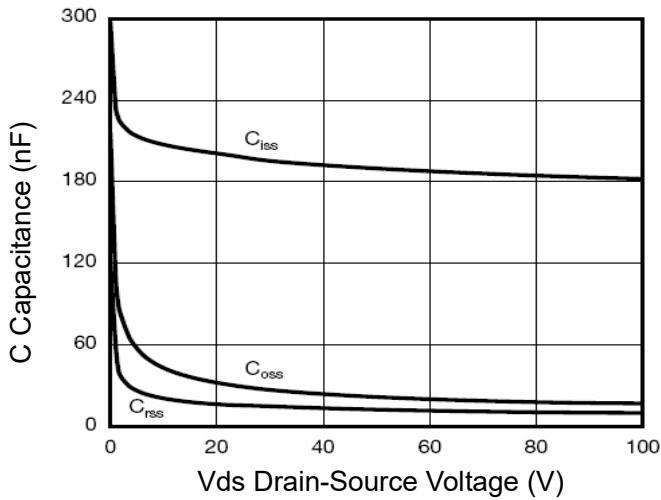


Figure 7 Capacitance vs Vds

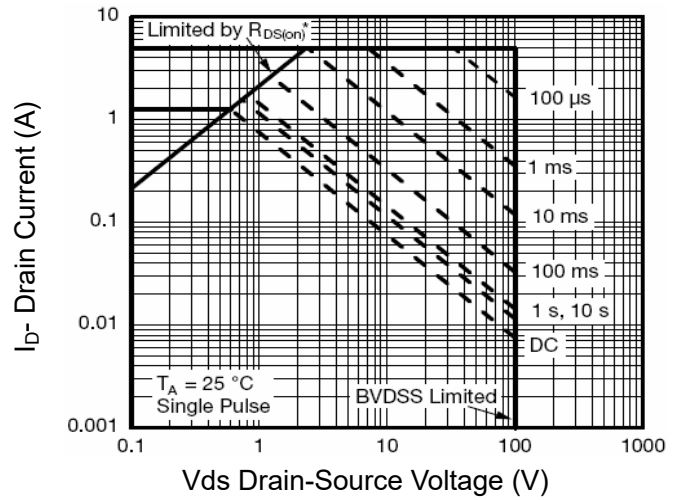


Figure 8 Safe Operation Area

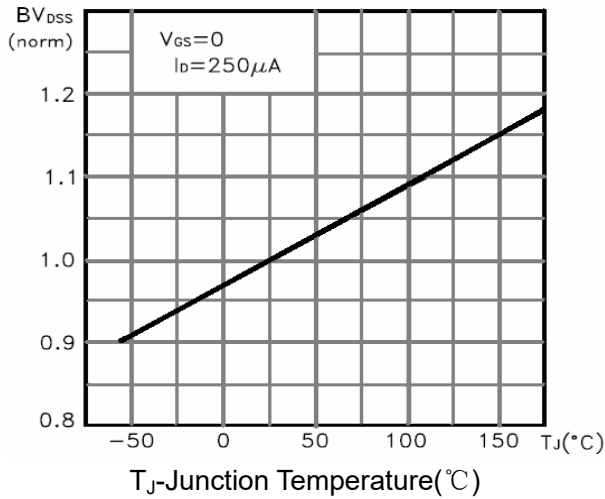


Figure 9 BV_{DSS} vs Junction Temperature

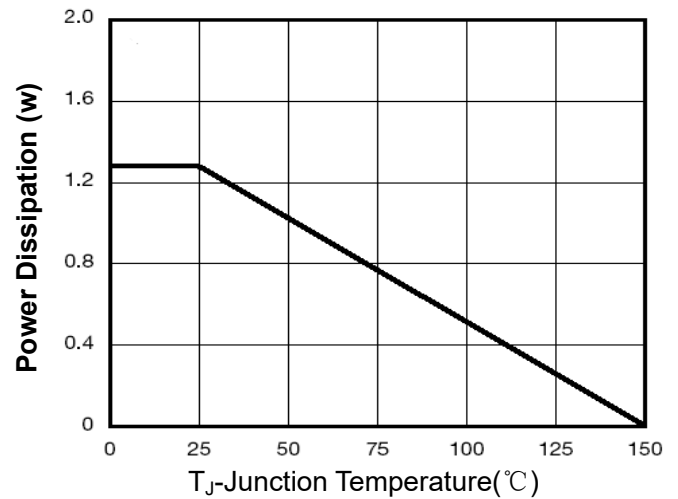


Figure 10 Power De-ratin

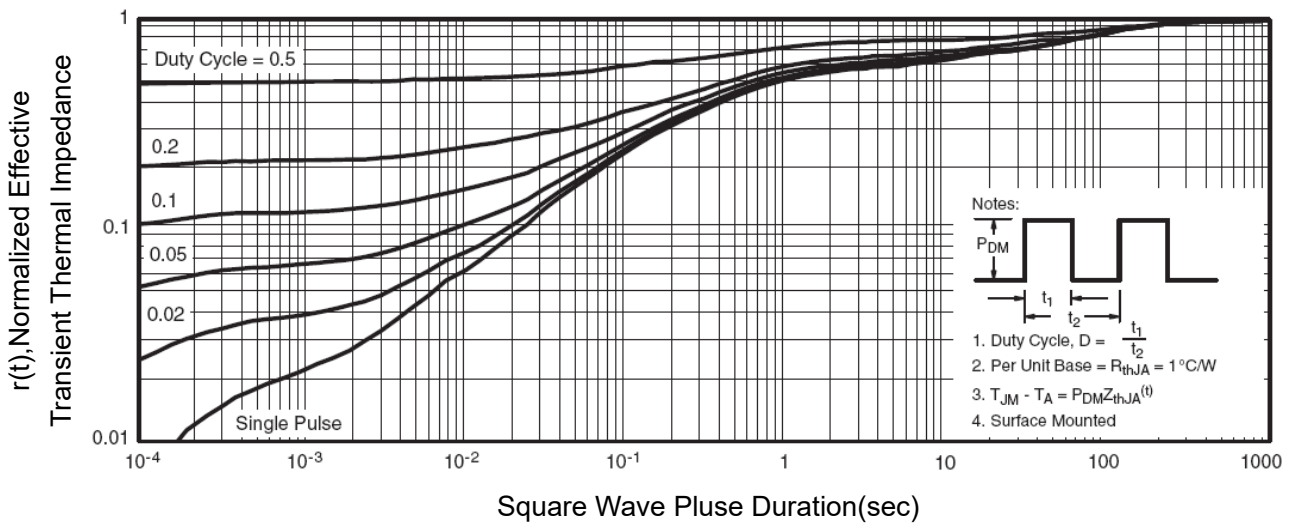
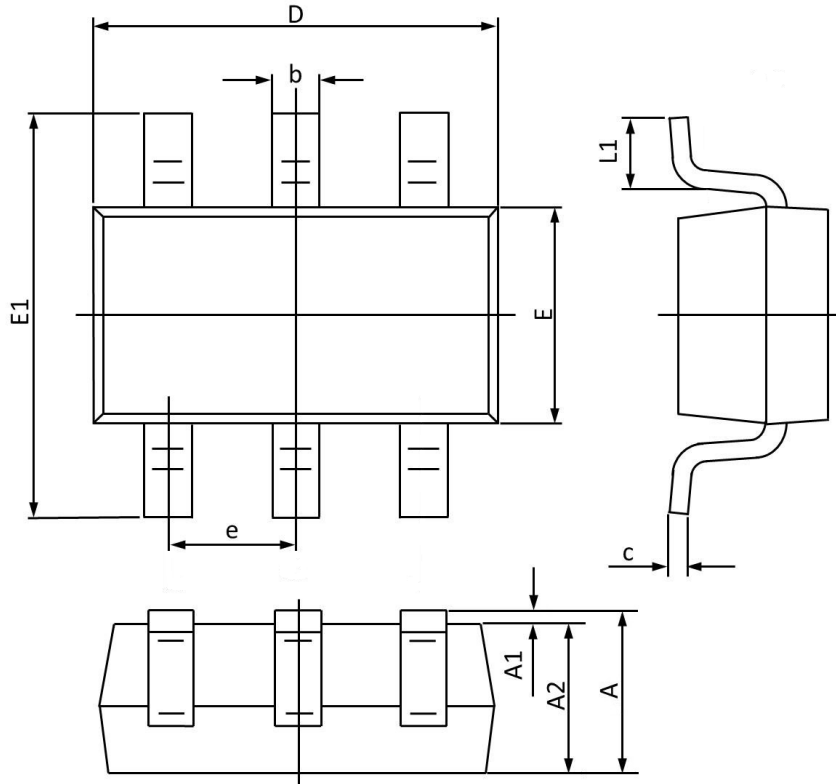


Figure 11 Normalized Maximum Transient Thermal Impedance

SOT-363 Package Outline Dimensions



Symbol	Dimensions (unit:mm)			Symbol	Dimensions (unit:mm)		
	Min	Typ	Max		Min	Typ	Max
A	0.80	0.95	1.10	D	1.80	2.00	2.20
A₁	--	--	0.10	E	1.15	1.25	1.35
A₂	0.80	0.90	1.00	E1	1.80	2.10	2.40
b	0.10	0.20	0.33	e	--	0.65	--
c	0.10	0.17	0.25	L1	0.10	0.20	0.35