Features

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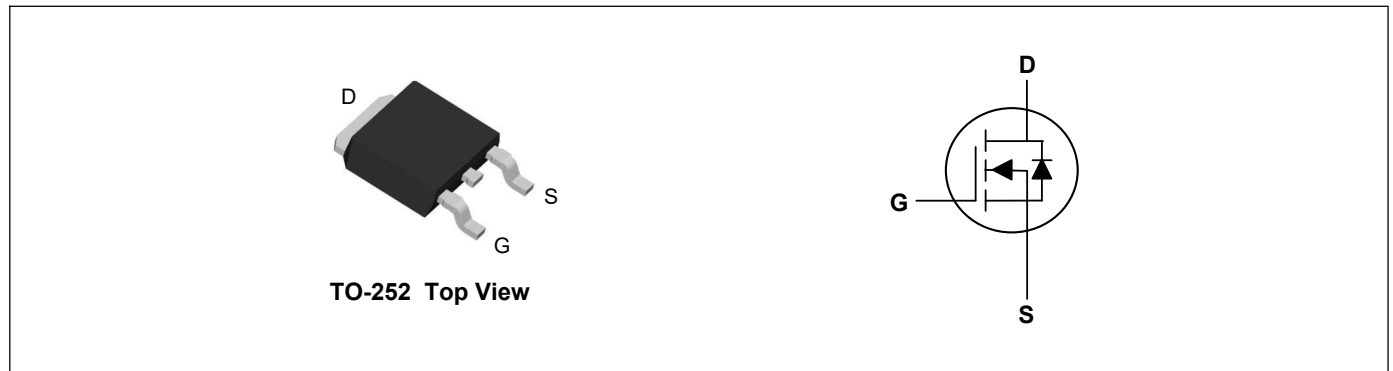
Product Summary

V_{DS}	200	V
I_D	2.1	A
$R_{DS(ON)}$ (at V_{GS}=10V)	650	mΩ
$R_{DS(ON)}$ (at V_{GS}=4.5V)	700	mΩ

Applications

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

TO-252 Top View

Absolute Maximum Ratings(T_A=25℃, unless otherwise noted)

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	200	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current[1]	I_D	2.1	A
Pulsed Drain Current[2]	I_{DM}	8	A
Total Power Dissipation[3]	P_D	2.5	W
Storage Temperature Range	T_{STG}	-55 to 150	℃
Operating Junction Temperature Range	T_J	-55 to 150	℃

Thermal Characteristics

Parameter	Symbol	Typ	Max	Unit
Thermal Resistance Junction-Ambient[1]	$R_{\theta JA}$	---	62	℃/W
Thermal Resistance Junction-Case[1]	$R_{\theta JC}$	---	3.5	℃/W

Electrical Characteristics (T$_J$=25℃, unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV$_{DSS}$	V$_{GS}$=0V , I$_D$=250uA	200	---	---	V
Static Drain-Source On-Resistance	R$_{DS(ON)}$	V$_{GS}$=10V , I$_D$=2A	---	550	650	mΩ
		V$_{GS}$=4.5V , I$_D$=2A	---	580	700	mΩ
Gate Threshold Voltage	V$_{GS(th)}$	V$_{GS}$=V$_{DS}$, I$_D$ =250uA	1.0	1.7	2.5	V
Drain-Source Leakage Current	I$_{DSS}$	V$_{DS}$=200V , V$_{GS}$=0V , T$_J$=25℃	---	---	1	uA
Gate-Source Leakage Current	I$_{GSS}$	V$_{GS}$=±20V , V$_{DS}$=0V	---	---	±100	nA
Forward Transconductance	gfs	V$_{DS}$=15V , I$_D$=2A	---	8	---	S
Total Gate Charge	Q$_g$	V$_{DS}$=100V , V$_{GS}$=10V , I$_D$=2A	---	12	---	nC
Gate-Source Charge	Q$_{gs}$		---	2.5	---	
Gate-Drain Charge	Q$_{gd}$		---	3.6	---	
Turn-On Delay Time	T$_{d(on)}$	V$_{DD}$=100V , V$_{GS}$=10V , R$_G$=2.5Ω, R$_L$=15Ω	---	10	---	ns
Rise Time	T$_r$		---	13	---	
Turn-Off Delay Time	T$_{d(off)}$		---	14	---	
Fall Time	T$_f$		---	15	---	
Input Capacitance	C$_{iss}$	V$_{DS}$=25V , V$_{GS}$=0V , f=1MHz	---	585	---	pF
Output Capacitance	C$_{oss}$		---	88	---	
Reverse Transfer Capacitance	C$_{rss}$		---	3	---	

Drain-Source Diode Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Diode Forward Voltage[2]	V$_{SD}$	V$_{GS}$=0V , I$_S$=2A , T$_J$=25℃	---	0.8	1.2	V

Note:

1.The data tested by surface mounted on a 1 inch[2] FR-4 board with 2OZ copper.

2.The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%

3.The power dissipation is limited by 150℃ junction temperature

Typical Characteristics
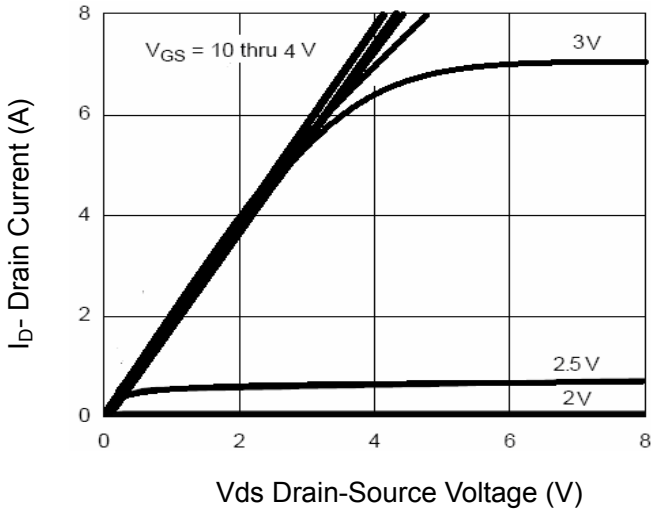

Figure 1 Output Characteristics

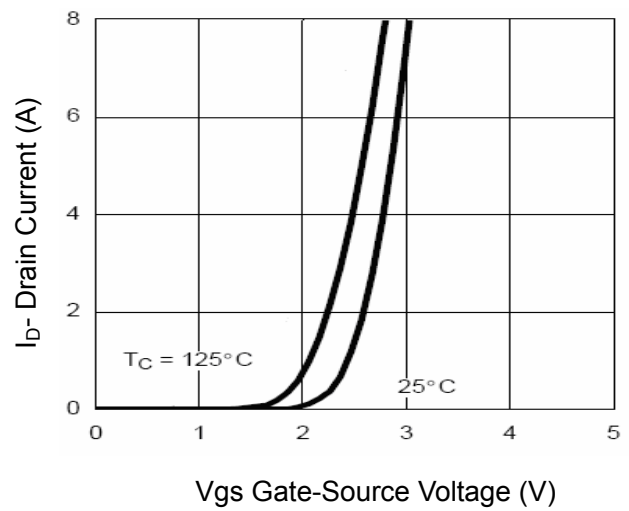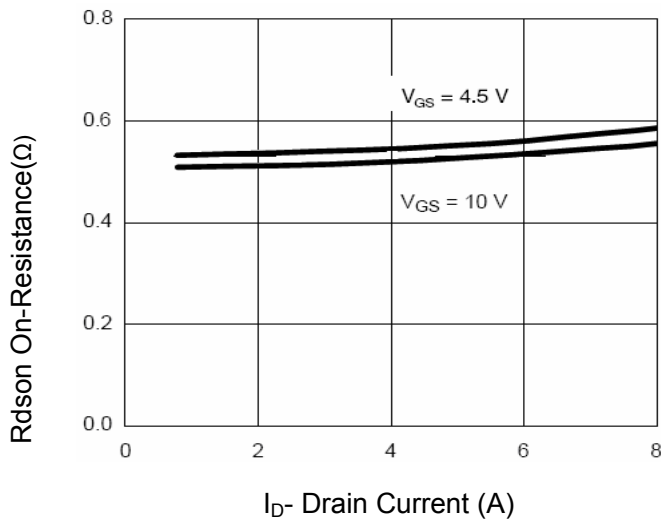

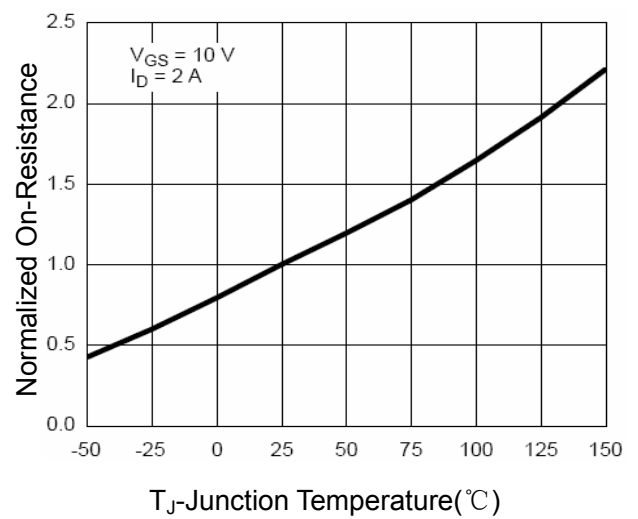Figure 2 Transfer Characteristics

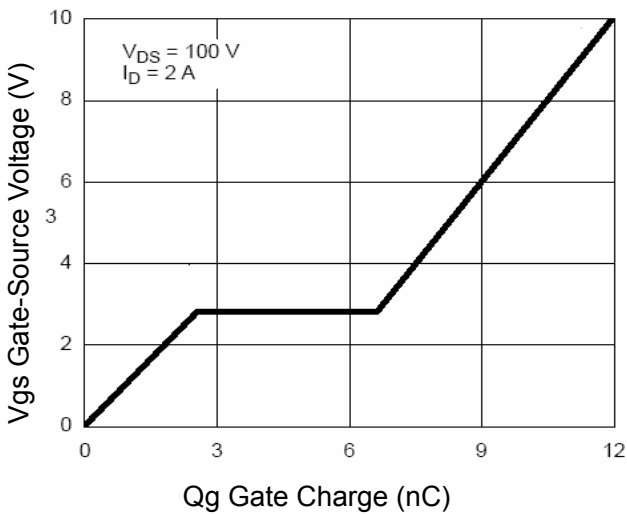Figure 3 Rdson- Drain Current

Figure 4 Rdson-JunctionTemperature

Figure 5 Gate Charge
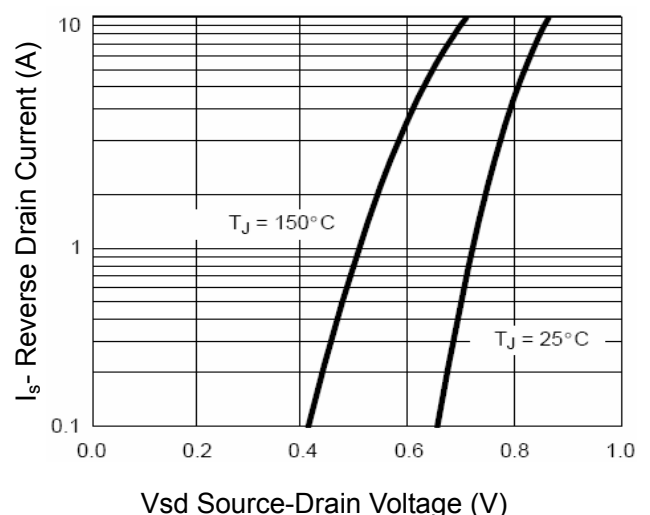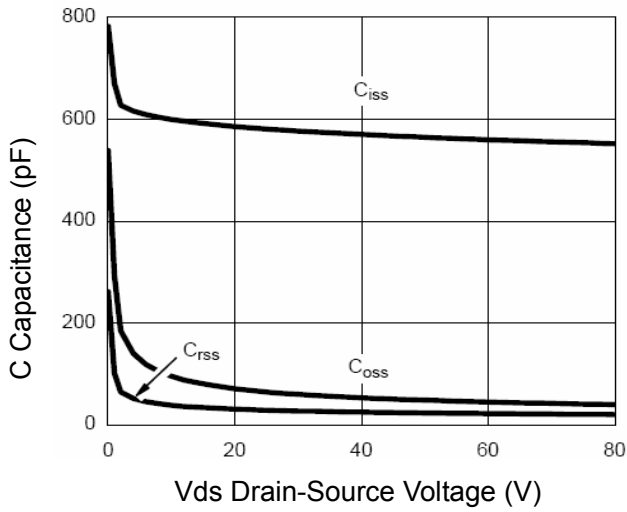

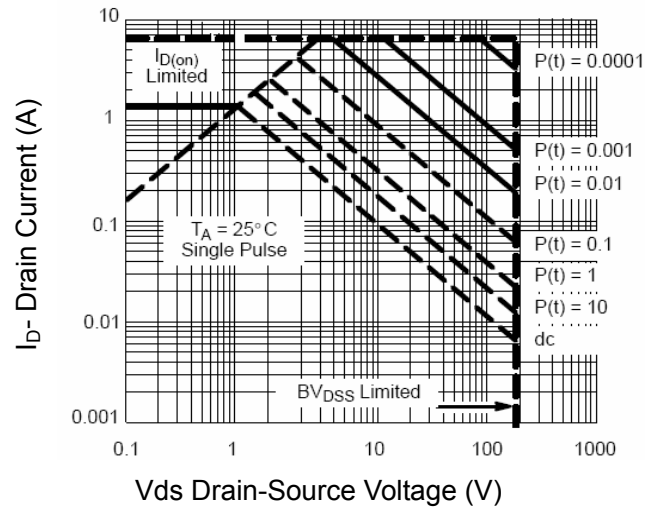Figure 6 Source- Drain Diode Forward

Figure 7 Capacitance vs Vds
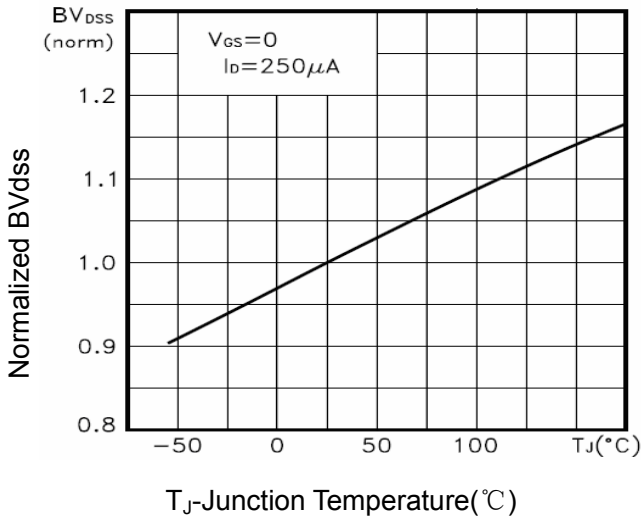

Figure 8 Safe Operation Area

Figure 9 BV$_{DSS}$ vs Junction Temperature

Figure 10 V$_{GS(th)}$ vs Junction Temperature

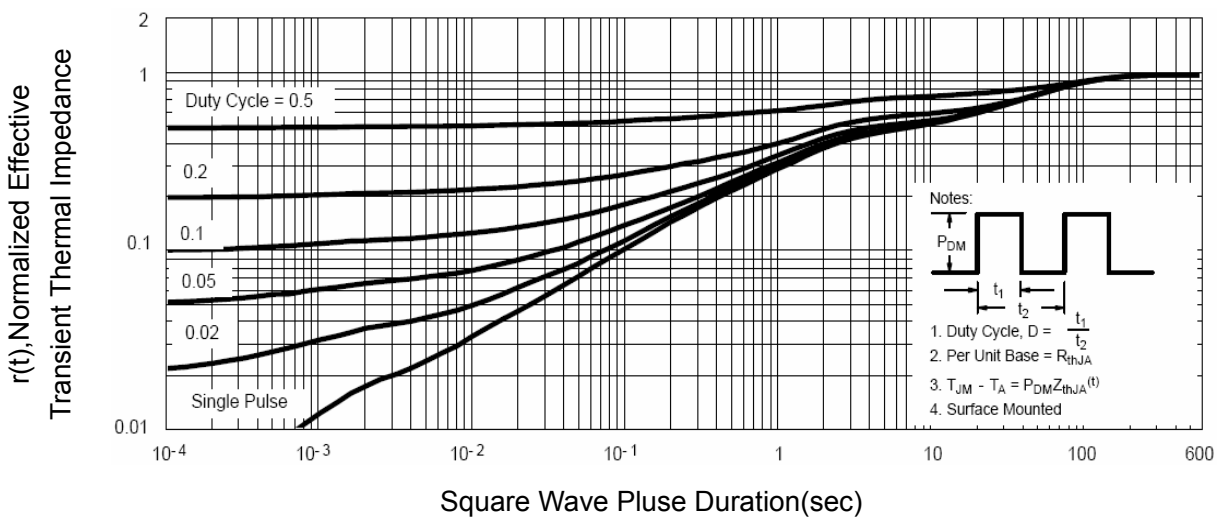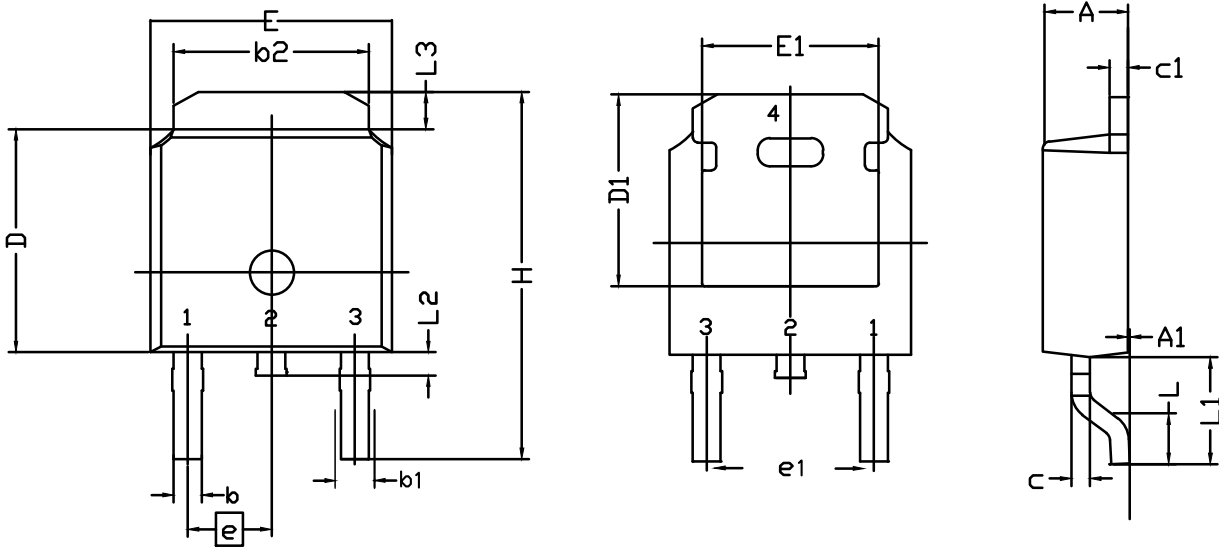Square Wave Pluse Duration(sec)

Figure 11 Normalized Maximum Transient Thermal Impedance

TO-252 Package Outline Dimensions

Symbol	Dimensions (unit:mm)			Symbol	Dimensions (unit:mm)		
	Min	Typ	Max		Min	Typ	Max
A	2.20	2.30	2.38	E	6.40	6.60	6.731
A_1	0.00	0.10	0.20	E_1	4.40	--	--
b	0.64	0.76	0.89	e	2.286 BSC		
b_1	0.77	0.85	1.14	e_1	4.572 BSC		
b_2	5.00	5.33	5.46	H	9.40	10.00	10.40
c	0.458	0.508	0.610	L	1.40	1.52	1.77
C_1	0.458	0.508	0.620	L_1	--	2.743	--
D	5.98	6.10	6.223	L_2	0.60	0.80	1.01
D_1	5.20	5.25	5.38	L_3	0.90	1.06	1.25