

Features

- Advanced high cell density Trench technology
- Super Low Gate Charge
- Excellent CdV/dt effect decline
- 100% EAS Guaranteed
- Green Device Available

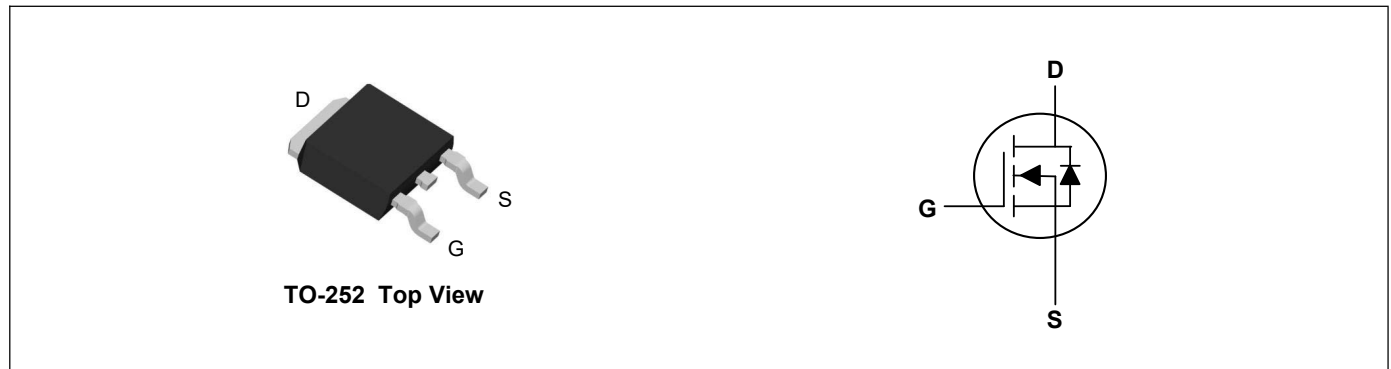
Product Summary



V_{DS}	60	V
I_D	80	A
$R_{DS(ON)}$ (at $V_{GS}=10V$)	7.5	m Ω

Applications

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



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

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	$I_D@T_C=25^{\circ}C$	80	A
Continuous Drain Current	$I_D@T_C=100^{\circ}C$	50	A
Pulsed Drain Current	I_{DM}	320	A
Single Pulse Avalanche Energy ³	EAS	324	mJ
Total Power Dissipation	$P_D@T_C=25^{\circ}C$	108	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-Case ¹	$R_{\theta JC}$	---	1.4	$^{\circ}C/W$

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	60	---	---	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =30A	---	6.5	7.5	mΩ
Gate Threshold Voltage	V _{GS(th)}	V _{GS} =V _{DS} , I _D =250uA	2.0	---	4.0	V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V, T _J =25°C	---	---	1	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	---	---	±100	nA
Forward Transconductance	g _{fs}	V _{DS} =10V, I _D =20A	---	---	---	S
Total Gate Charge	Q _g	V _{DS} =30V, V _{GS} =10V, I _D =40A	---	118	---	nC
Gate-Source Charge	Q _{gs}		---	16	---	
Gate-Drain Charge	Q _{gd}		---	23	---	
Turn-On Delay Time	T _{d(on)}	V _{DD} =30V, I _D =40A, V _{GS} =10V, R _G =1.8Ω	---	10	---	ns
Rise Time	T _r		---	7	---	
Turn-Off Delay Time	T _{d(off)}		---	38	---	
Fall Time	T _f		---	16	---	
Input Capacitance	C _{iss}	V _{DS} =30V, V _{GS} =0V, f=1MHz	---	6150	---	pF
Output Capacitance	C _{oss}		---	230	---	
Reverse Transfer Capacitance	C _{rss}		---	236	---	

Drain-Source Diode Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Continuous Source Current ¹	I _S		---	---	80	A
Diode Forward Voltage ²	V _{SD}	V _{GS} =0V, I _S =40A, T _J =25°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 ≤ 300us, duty cycle ≤ 2%
- 3.The EAS data shows Max. rating. The test condition is V_{DD}=20V, V_{GS}=10V, L=1mH, R_G=25Ω
- 4.The power dissipation is limited by 175°C junction temperature

Typical Characteristics

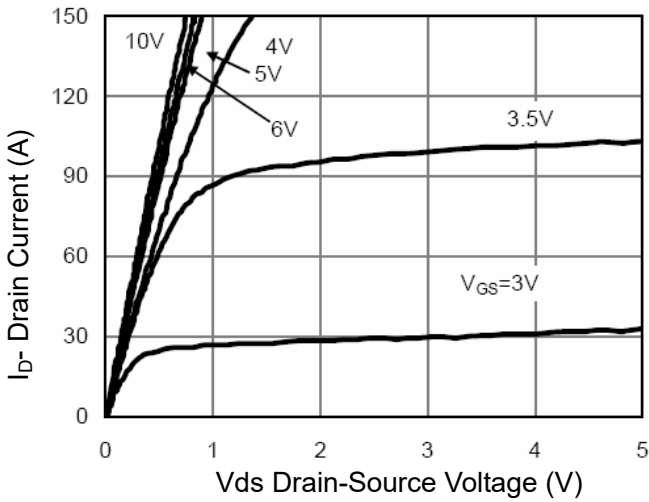


Figure 1 Output Characteristics

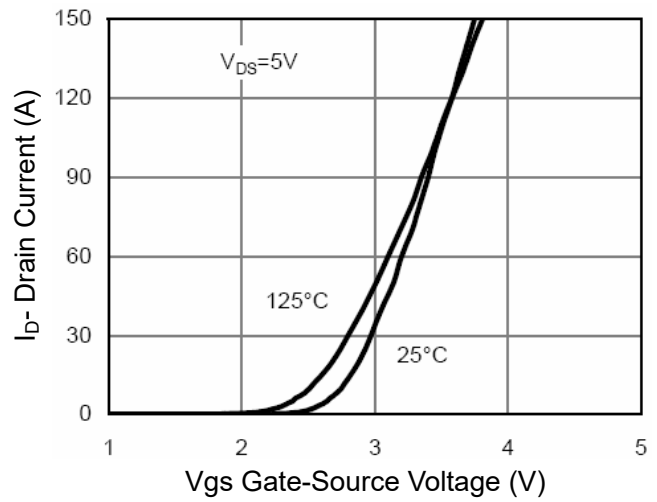


Figure 2 Transfer Characteristics

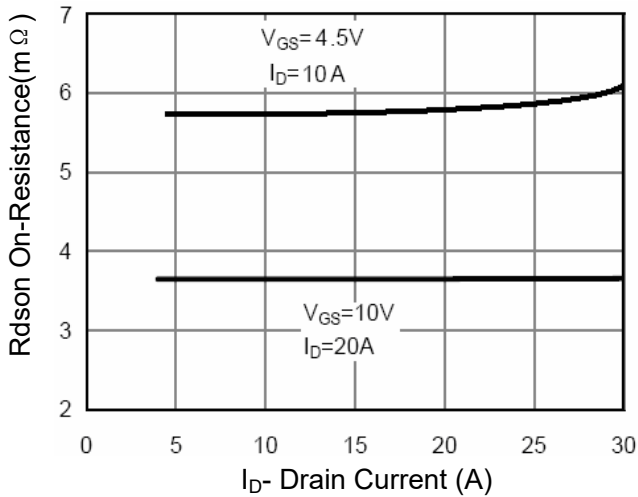


Figure 3 Rdson- Drain Current

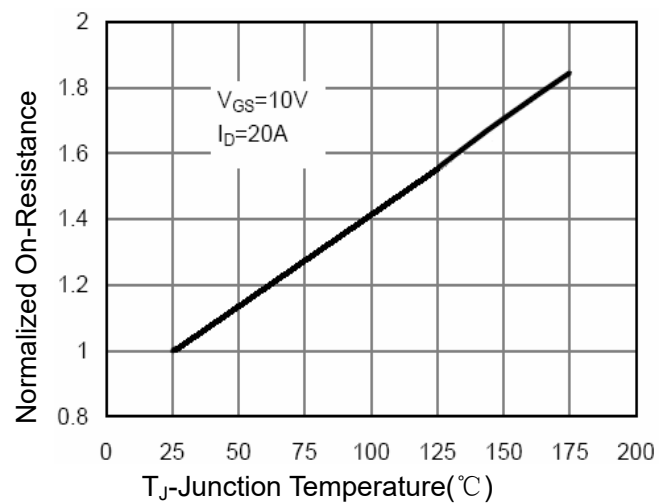


Figure 4 Rdson-Junction Temperature

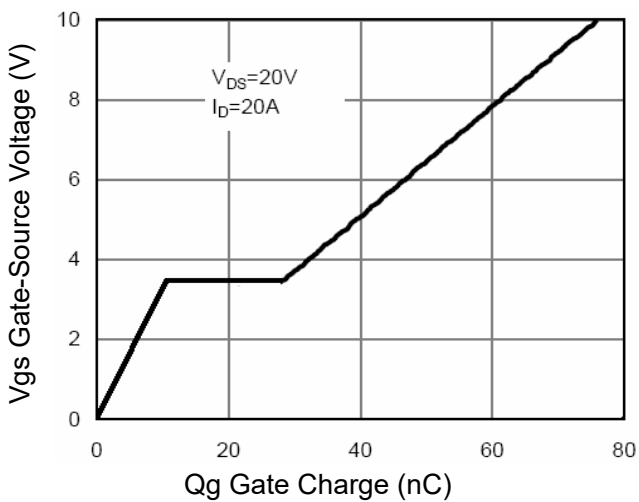


Figure 5 Gate Charge

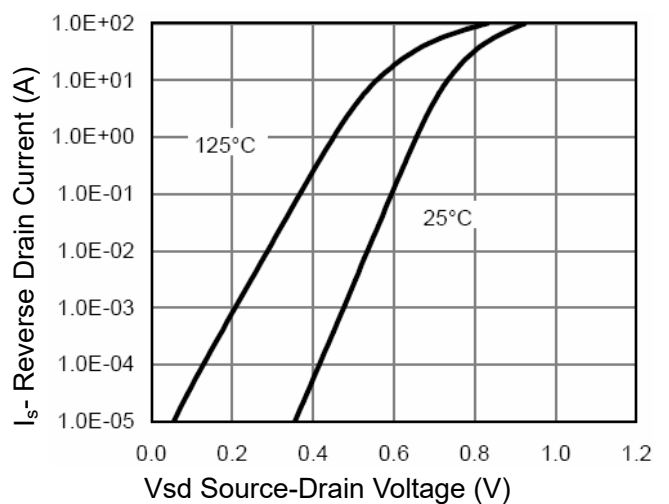


Figure 6 Source- Drain Diode Forward

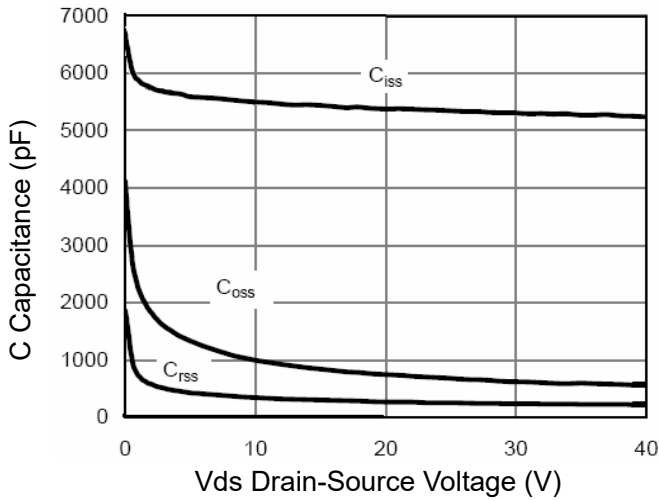


Figure 7 Capacitance vs Vds

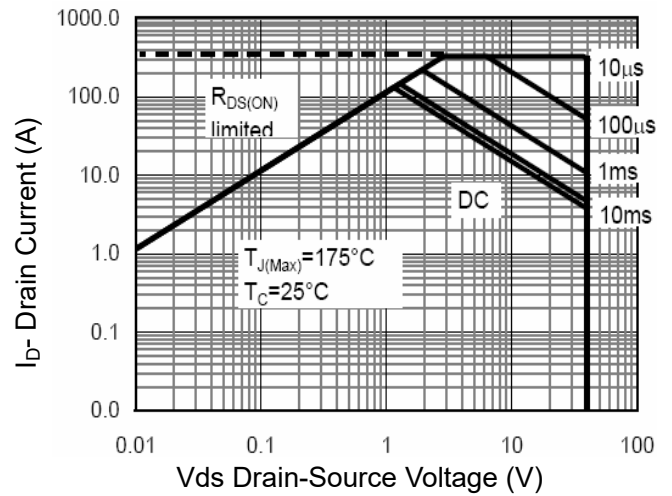


Figure 8 Safe Operation Area

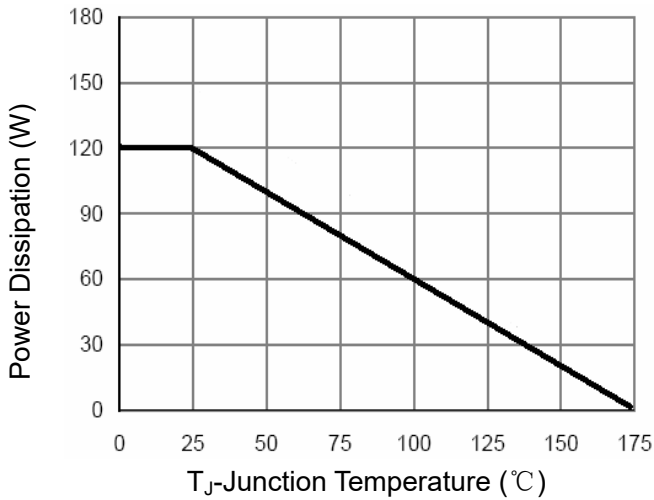


Figure 9 Power De-rating

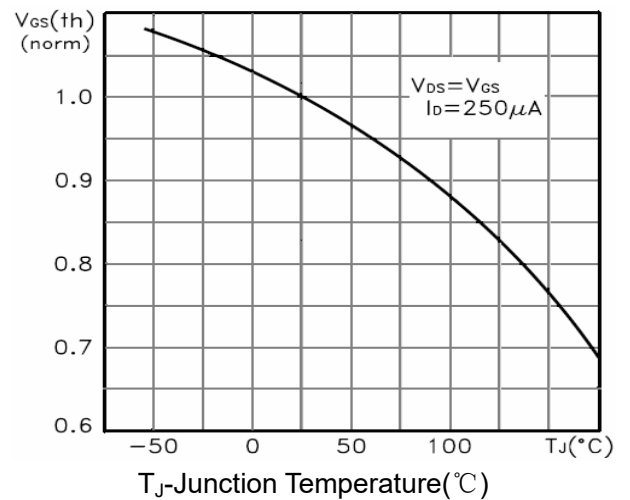


Figure 10 VGS(th) vs Junction Temperature

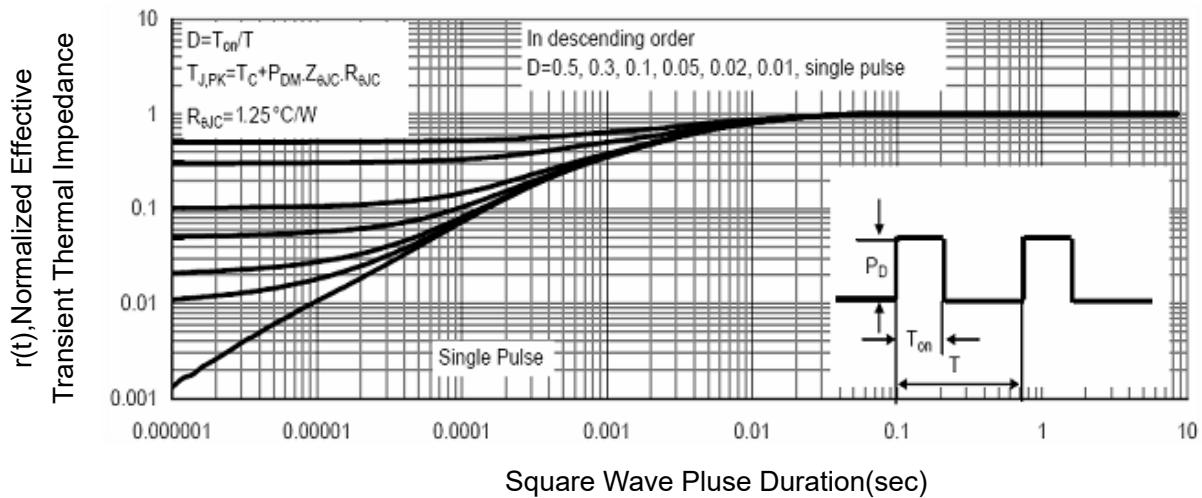
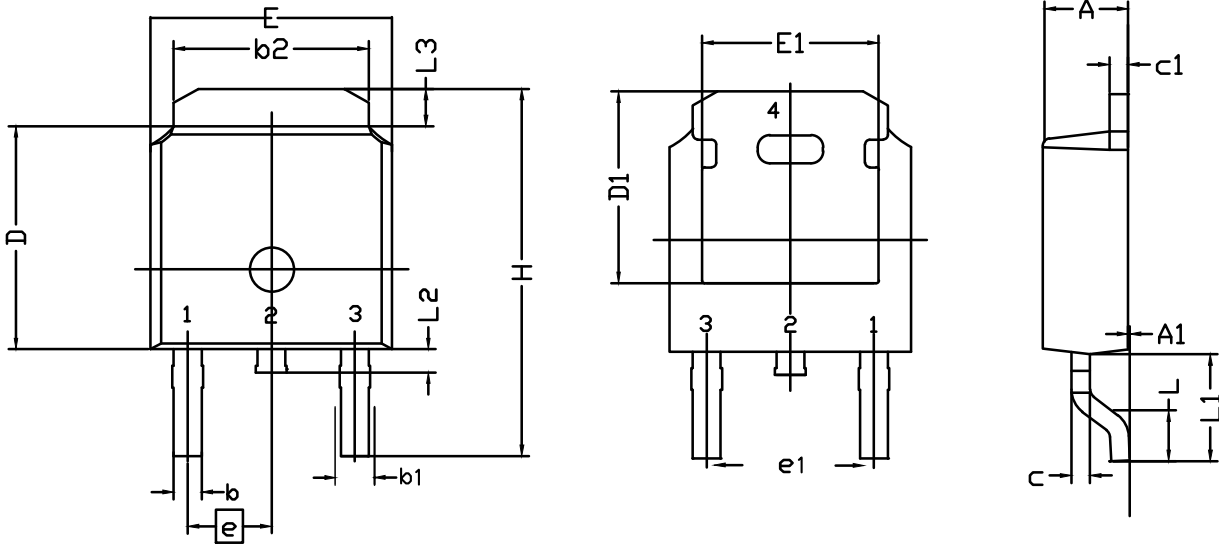


Figure 11 Normalized Maximum Transient Thermal Impedance

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