RoHS

Features

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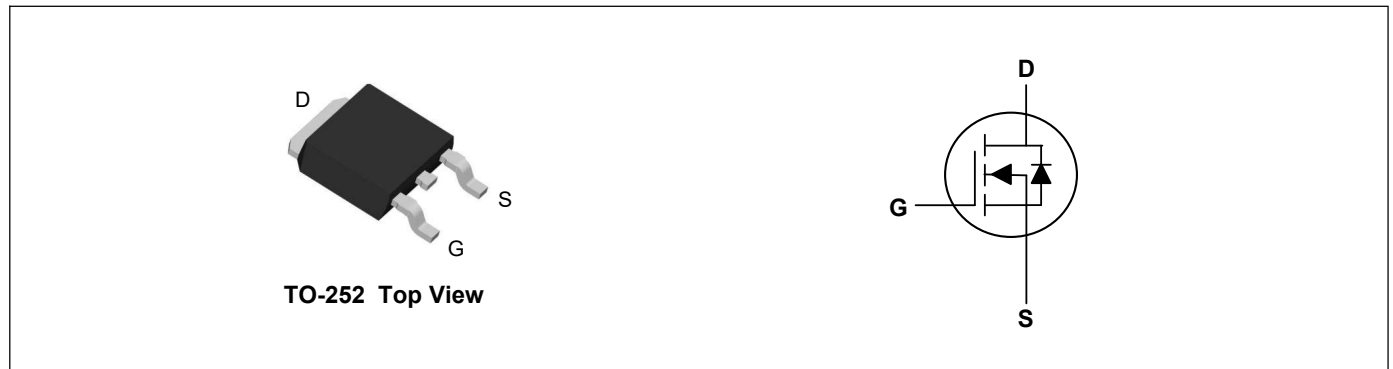- Green Device Available

Applications

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

Product Summary

V_{DS}	80	V
I_D	95	A
$R_{DS(ON)}$ Typ (at V_{GS}=10V)	6.9	mΩ

TO-252 Top View

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

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	80	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current[1]	$I_D@T_C$=25℃	95	A
Pulsed Drain Current[2]	I_{DM}	320	A
Single Pulse Avalanche Energy[3]	E_{AS}	190	mJ
Total Power Dissipation[4]	P_D	139	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]	$R_{θJA}$	---	75	℃/W
Thermal Resistance Junction-Case[1]	$R_{θJC}$	---	0.9	℃/W

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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	80	---	---	V
Static Drain-Source On-Resistance	R$_{DS(ON)}$	V$_{GS}$=10V , I$_D$=40A	---	6.9	8.5	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$_{DS}$=80V , V$_{GS}$=0V , T$_J$=25℃	---	---	1	uA
Gate-Source Leakage Current	I$_{GSS}$	V$_{GS}$=±20V , V$_{DS}$=0V	---	---	±100	nA
Total Gate Charge	Q$_g$		---	28	---	
Gate-Source Charge	Q$_{gs}$	V$_{DS}$=40V , V$_{GS}$=10V , I$_D$=40A	---	8	---	nC
Gate-Drain Charge	Q$_{gd}$		---	9	---	
Turn-On Delay Time	T$_{d(on)}$		---	15	---	
Rise Time	T$_r$	V$_{DS}$=40V , V$_{GS}$=10V , R$_G$=2.5Ω, I$_D$=40A	---	8.2	---	ns
Turn-Off Delay Time	T$_{d(off)}$		---	28	---	
Fall Time	T$_f$		---	8.4	---	
Input Capacitance	C$_{iss}$		---	1475	---	
Output Capacitance	C$_{oss}$	V$_{DS}$=40V , V$_{GS}$=0V , f=1MHz	---	379	---	pF
Reverse Transfer Capacitance	C$_{rss}$		---	30	---	

Drain-Source Diode Characteristics

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Diode Forward Voltage[2]	V$_{SD}$	V$_{GS}$=0V , I$_S$=40A , T$_J$=25℃	---	---	1.2	V
Reverse recovery time	t$_{rr}$	I$_F$=40A, diF/dt=125A/μs	---	52.2	---	ns
Reverse recovery charge	Q$_{rr}$		---	45	---	nC

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 EAS data shows Max. rating . The test condition is V$_{DD}$=50V,V$_{GS}$=10V,L=1mH

4. The power dissipation is limited by 150℃ junction temperature
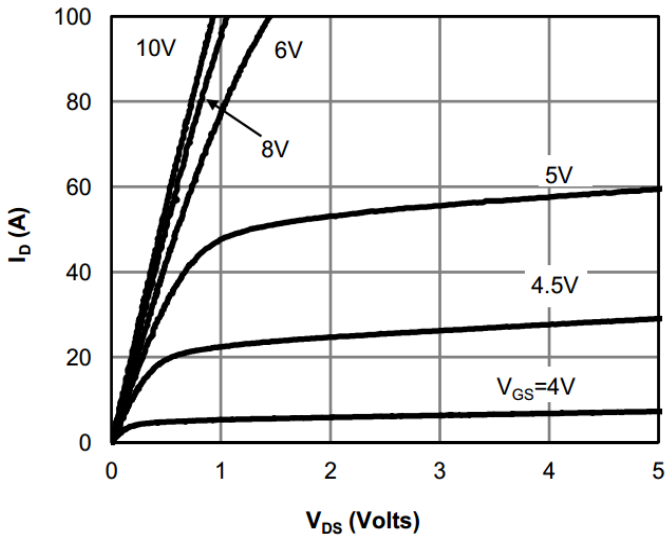
Typical Characteristics
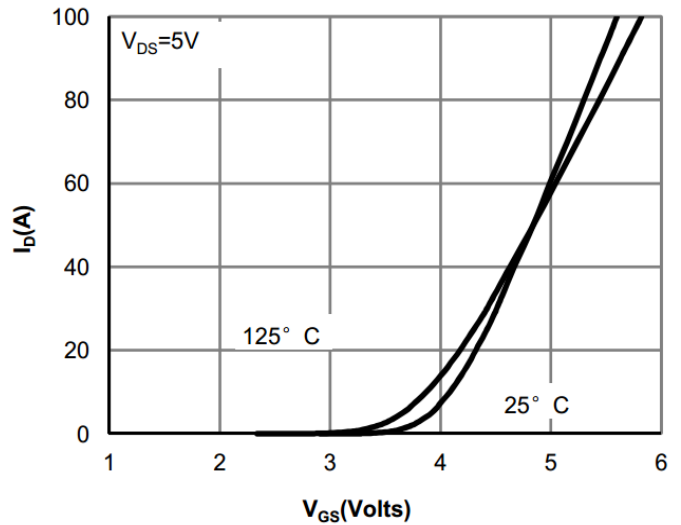

Fig 1: On-Region Characteristics
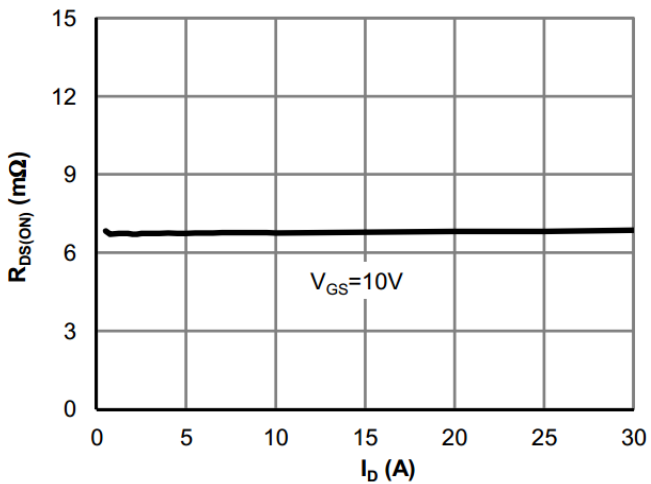

Figure 2: Transfer Characteristics

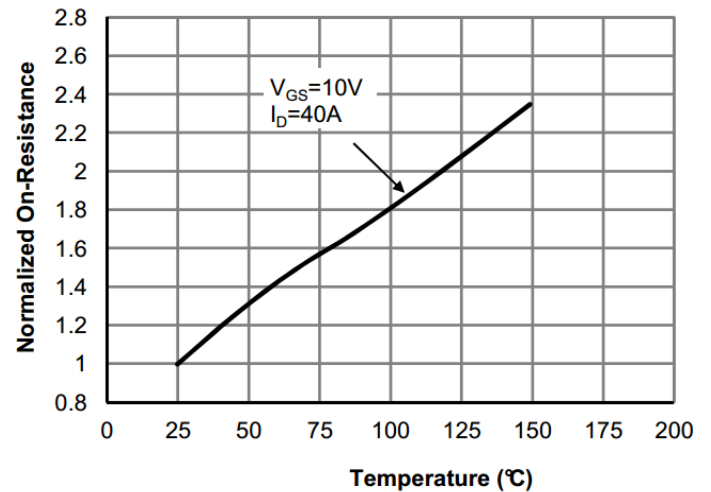Figure 3: On-Resistance vs. Drain Current and Gate Voltage

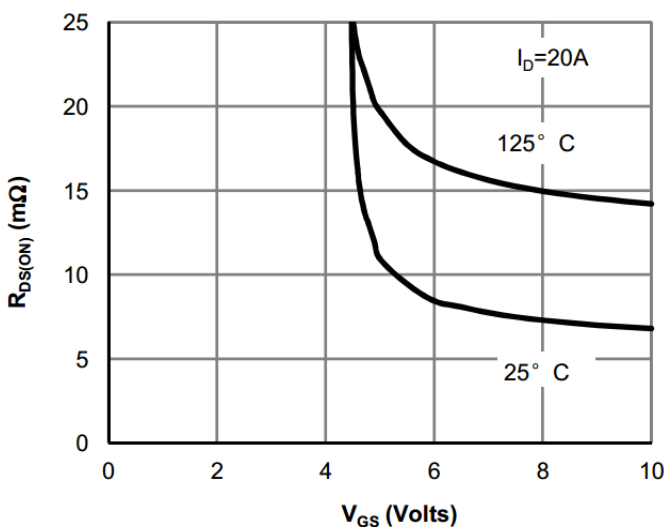Figure 4: On-Resistance vs. Junction Temperature

Figure 5: On-Resistance vs. Gate-Source Voltage
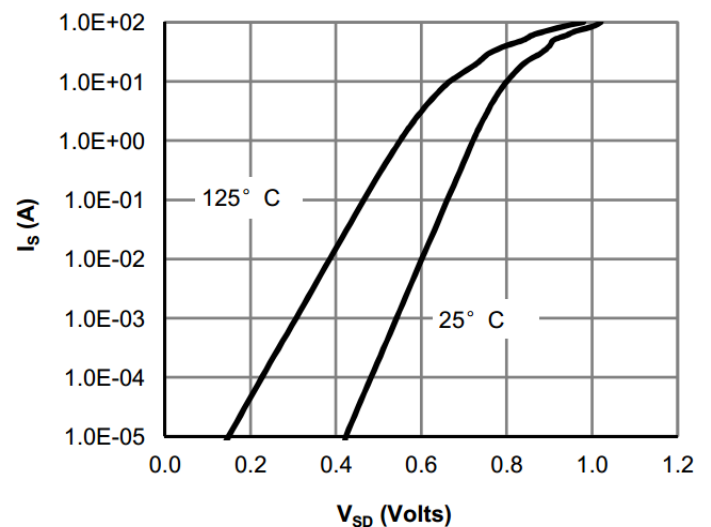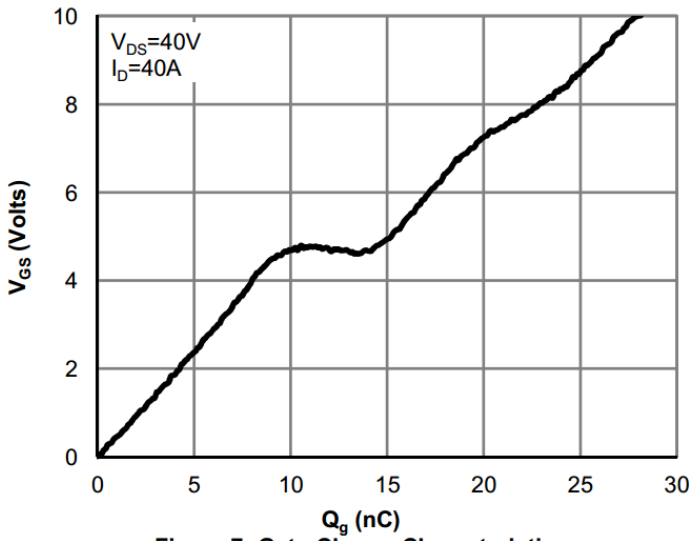

Figure 6: Body-Diode Characteristics
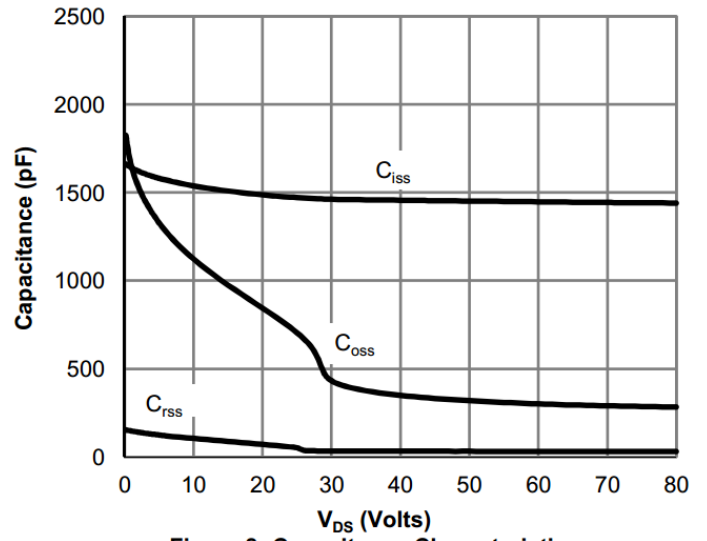
Figure 7: Gate-Charge Characteristics
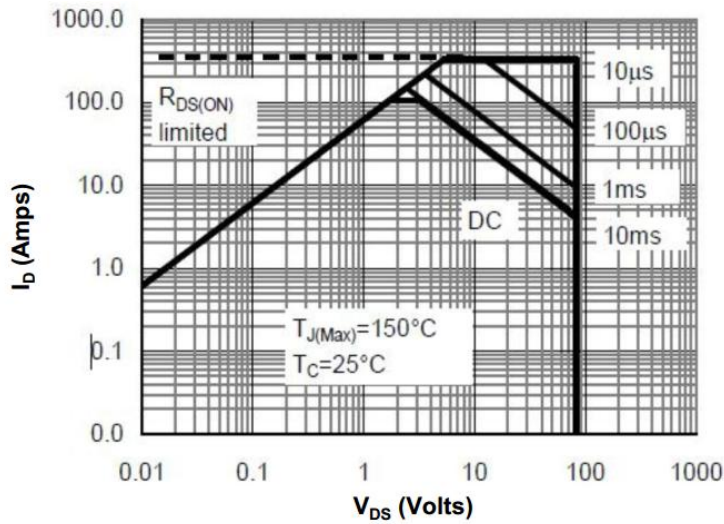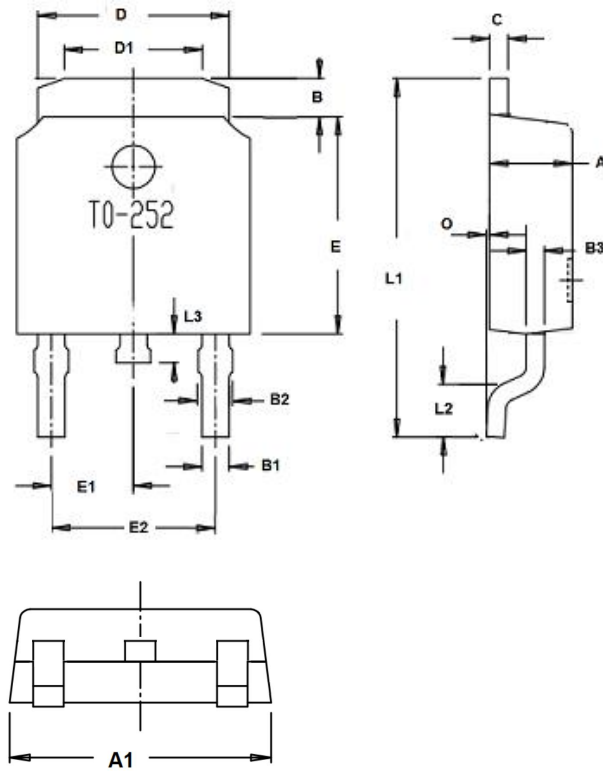

Figure 8: Capacitance Characteristics

Figure 9: Maximum Forward Biased Safe Operating Area

TO-252 Package Outline Dimensions

Dim.	Min.	Max.
A	2.1	2.5
A1	6.3	6.9
B	0.96	1.42
B1	0.74	0.86
B2	0.74	0.94
C	Typ0.5	
D	5.33	5.53
D1	3.65	4.05
E	6.0	6.2
E1	Typ2.29	
E2	Typ4.58	
O	0	0.15
L1	9.9	10.5
L2	Typ1.65	
L3	0.6	1.0
All Dimensions in millimeter		

TO-252 Package Outline Dimensions

Printing Information

XXXXXXX   ====Material Code

XXYY   ====XX Representative Year
            YY Representative Weeks