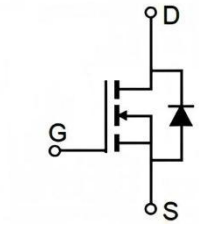
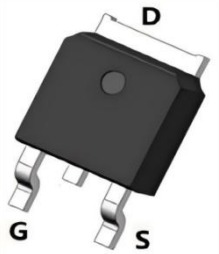
N-Channel Enhancement Mode MOSFET

Parameter	Value	Unit
V_{DS}	30	V
$R_{DS(on)}$	4	mΩ
I_D	80	A





TO-252

Features

- Low gate Charge (typical 42.4nC)
- 100% EAS Guaranteed
- Advanced High Cell Density Trench Technology

Applications

- DC-DC converters
- Power management functions
- Industrial and Motor Drive application

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

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±20	V
Continue Drain Current [1]	T_A=25℃	I_D	80	A
Continue Drain Current [1]	T_A=100℃	I_D	56	A
Pulsed Drain Current [2]		I_{DM}	320	A
Power Dissipation		P_D	39	W
Single Pulse Avalanche Energy [3]		E_{AS}	127	mJ
Continuous Diode Forward Current		I_S	80	A
Diode Pulsed Current [2]		I_{Spulse}	320	A
Operating Temperature Range		T_J	-55 to +150	°C
Storage Temperature Range		T_{STG}	-55 to +150	°C
Thermal Resistance, Junction to Case		$R_{\theta JC}$	1.8	°C/W
Thermal Resistance, Junction to Ambient		$R_{\theta JA}$	65	°C/W

Electrical Characteristics(TJ=25℃,unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250uA	30	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V V_{GS}=0V, T_J=25℃	--	--	1	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±20V	--	--	±100	nA
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250uA	1	--	2.5	V
Drain-Source On-State-Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=40A	--	4	6	mΩ
		V_{GS}=4.5V, I_D=40A	--	6.8	10	mΩ
Gate Resistance	R_G	f =1.0MHz	--	1.9	--	Ω
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=15V, f =1MHz	--	1728	--	pF
Output Capacitance	C_{oss}		--	268	--	
Reverse Transfer Capacitance	C_{rss}		--	182	--	
Total Gate Charge	Q_g	V_{GS}=10V V_{DD}=15V, I_D=40A	--	42.4	--	nC
Gate-Source Charge	Q_{gs}		--	6.7	--	
Gate-Drain Charge	Q_{gd}		--	9.2	--	
Gate Plateau Voltage	V Plateau		--	3.5	--	
Turn-on Delay Time	$t_{d(on)}$	V_{GS}=10V, V_{DD}=15V, R_G=3.3Ω, I_D = 40A	--	10	--	ns
Turn-on Rise Time	tr		--	76	--	
Turn-off Delay Time	$t_{d(off)}$		--	35	--	
Turn-off Fall Time	t_f		--	10	--	
Drain.Source Body Diode Characteristics						
Body Diode Forward Voltage	V_{SD}	T_J=25℃, V_{GS}=0V, I_S=40A	--	--	1.2	V
Reverse Recovery Time	t_{rr}	I_F=40A, diF/dt=100A/us	--	19	--	ns
Reverse Recovery Charge	Q_{rr}		--	20	--	nC

Notes
1) Limited by maximum junction temperature.
2) Repetitive Rating: Pulse width limited by maximum junction temperature.
3) L=0.5mH, RG=25Ω , VGS=10V, VDD=15V, Start TJ=25℃.

Typical Characteristics

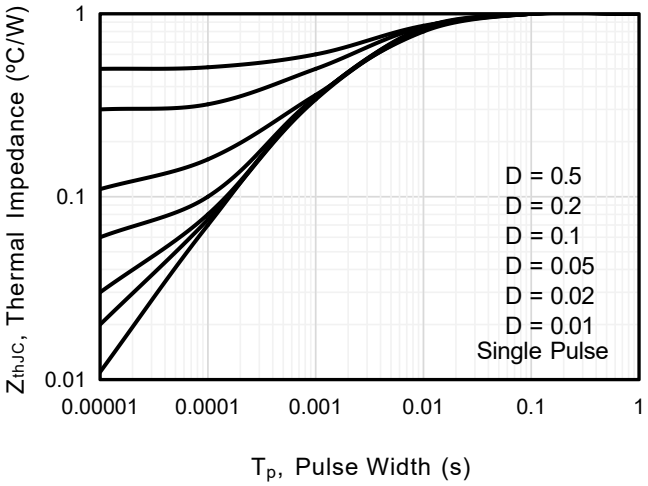


Figure 1. Transient Thermal Impedance

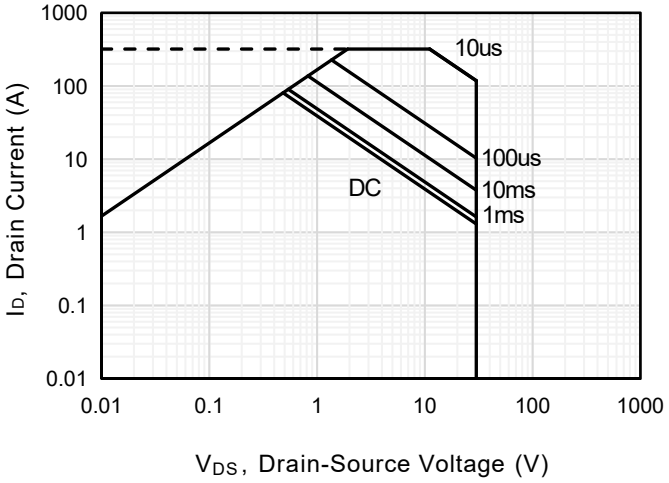


Figure 2 . Safe Operation Area

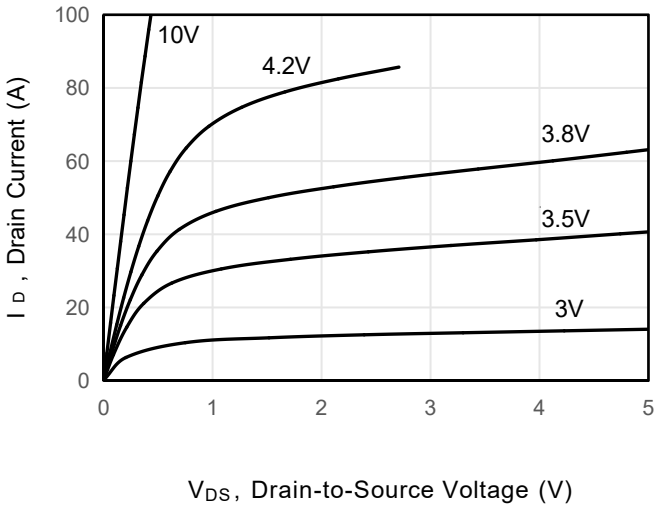


Figure 3 . Output Characteristics

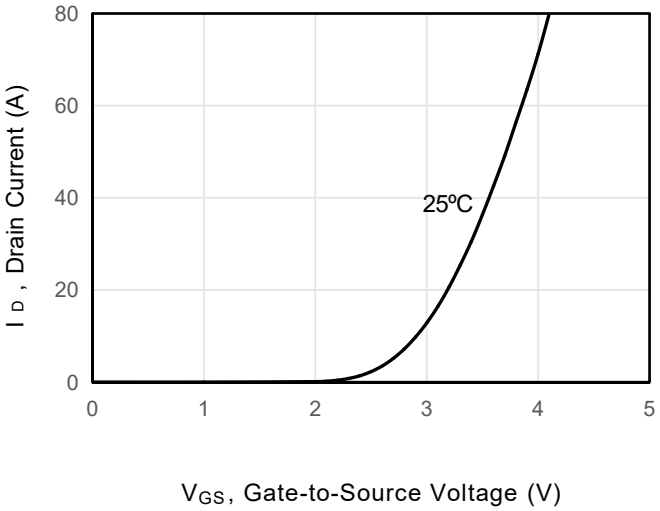


Figure 4 . Transfer Characteristics

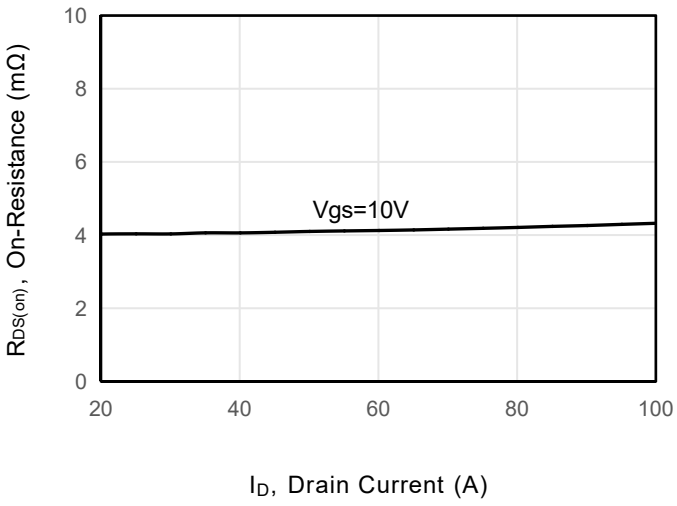


Figure 5 . On-Resistance vs Drain Current

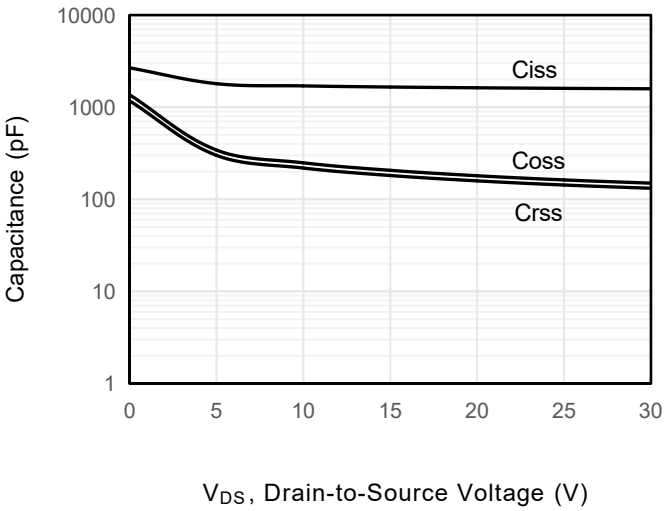


Figure 6 . Capaticance

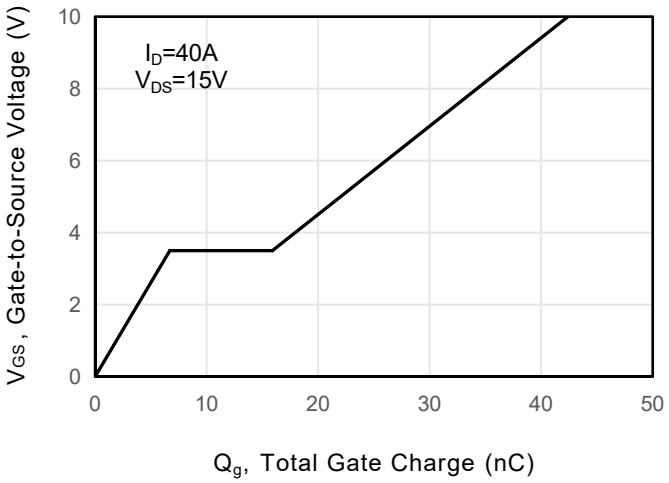


Figure 7 . Gate Charge

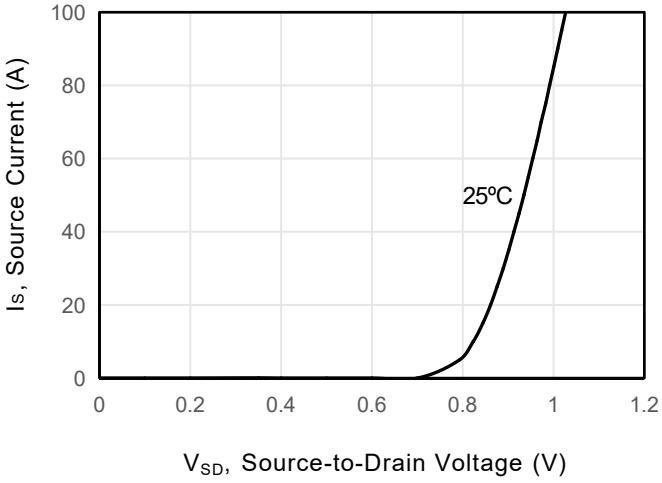


Figure 8 . Body Diode Forward Voltage

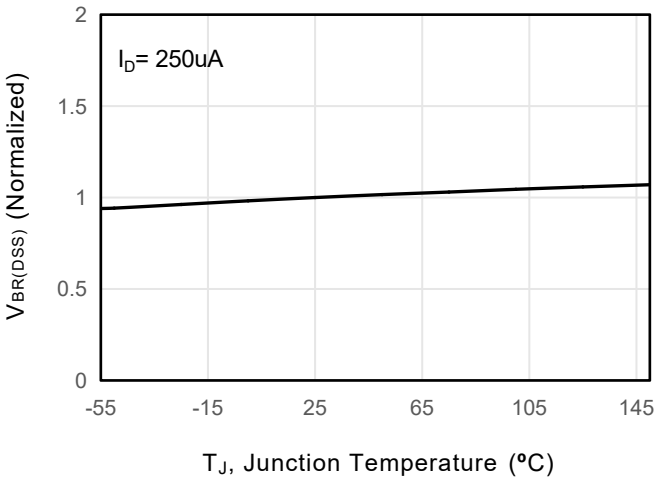


Figure 9. Breakdown Voltage vs Junction Temperature

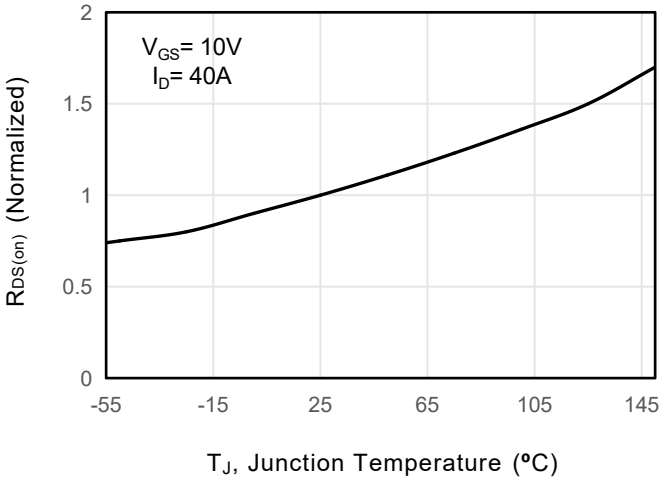


Figure 10. On-Resistance vs Temperature

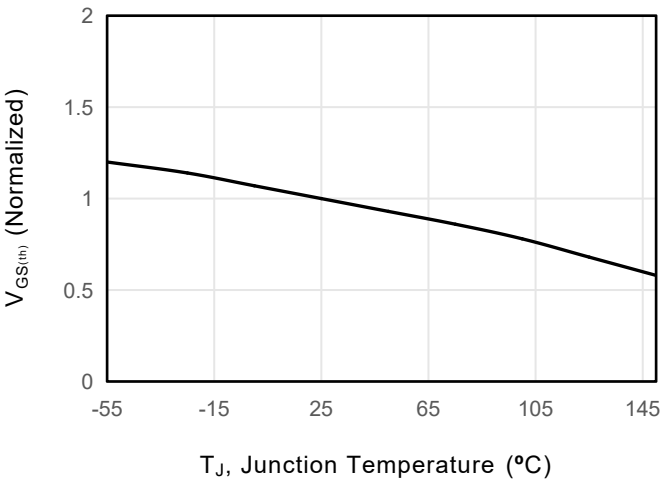
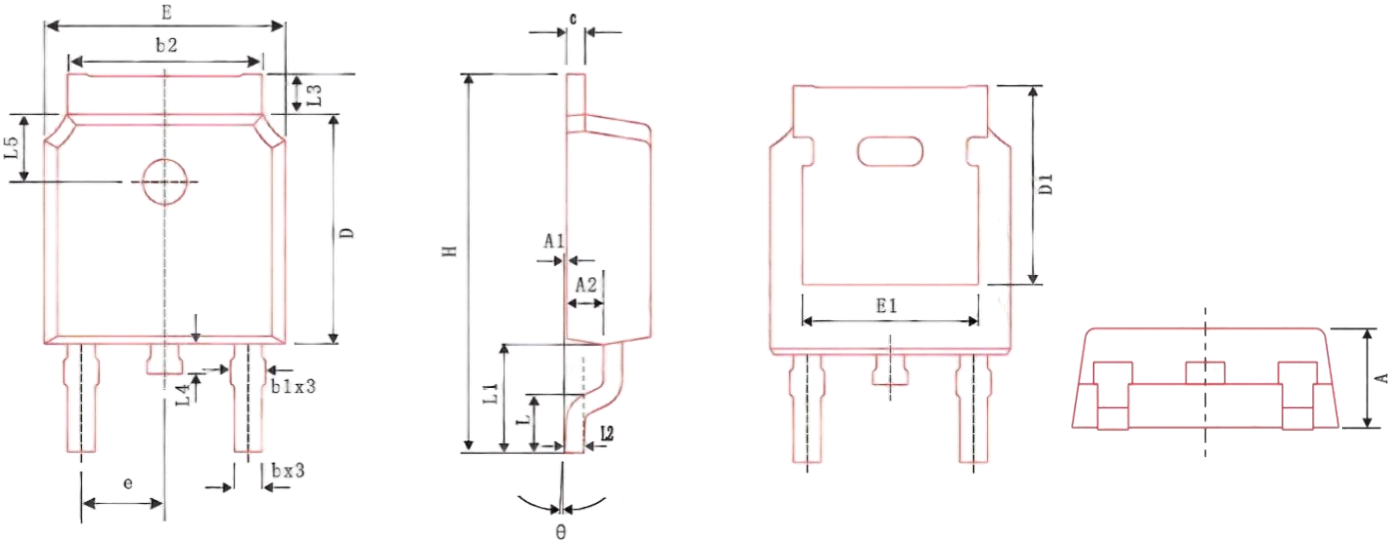


Figure 11. $V_{GS(th)}$ vs Junction Temperature

Package Outline Dimensions (Units: mm)

TO-252



Symbol	Min	Nom	Max
A	2.20	2.30	2.40
A1	0.00	0.05	0.12
A2	0.91	1.01	1.11
b	0.68	0.78	0.88
b1	-	-	1.00
b2	5.13	5.33	5.53
C	0.428	0.528	0.628
D	5.90	6.10	6.30
D1		5.30REF	
E	6.40	6.60	6.80
E1		4.83REF	
H	9.64	10.04	10.44
L	1.25	1.50	1.75
L1		2.88REF	
L2		0.51BSC	
L3	0.86	1.06	1.26
L4	0.60	0.80	1.00
L5	1.65	1.80	1.95
θ	0 °	-	8 °
e		2.286BSC	

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