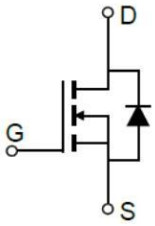
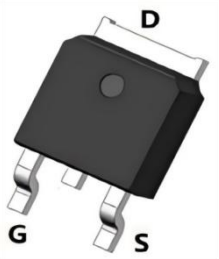
N-Channel Enhancement Mode MOSFET

Parameter	Value	Unit
V_{DS}	60	V
$R_{DS(on)}$	12	mΩ
I_D	50	A





TO-252

Features

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

Applications

- Load Switch
- PWM Application
- Power management

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current @T_C=25℃	I_D	50	A
Continuous Drain Current @T_C=100℃	I_D	33	A
Pulsed Drain Current	I_{DM}	200	A
Single Pulse Avalanche Energy	E_{AS}	68	mJ
Total Power Dissipation @T_C=25℃	P_D	87.7	W
Thermal Resistance Junction-Case	$R_{\theta JC}$	1.6	℃/W
Operating and Storage Temperature Range	$T_{STG;}$ T_J	-55 to 175	℃

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

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Units
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA	60	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V, V_{GS}=0V,	-	-	1.0	μA
Gate to Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}= ±20V	-	-	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} , I_D=250μA	1.0	1.6	2.5	V
Static Drain-Source on-Resistance note3	$R_{DS(on)}$	V_{GS}=10V, I_D=30A	-	12	17	mΩ
		V_{GS}=4.5V, I_D=20A	-	16	25	
Input Capacitance	C_{iss}	V_{DS}=25V, V_{GS}=0V, f=1.0MHz	-	2900	-	pF
Output Capacitance	C_{oss}		-	140	-	pF
Reverse Transfer Capacitance	C_{rss}		-	120	-	pF
Total Gate Charge	Q_g	V_{DS}=30V, I_D=30A, V_{GS}=10V	-	50	-	nC
Gate-Source Charge	Q_{gs}		-	6	-	nC
Gate-Drain(“Miller”) Charge	Q_{gd}		-	15	-	nC
Turn-on Delay Time	$t_{d(on)}$	V_{DS}=30V, I_D=30A, R_G=1.8Ω, V_{GS}=10V	-	7.4	-	ns
Turn-on Rise Time	t_r		-	5.1	-	ns
Turn-off Delay Time	$t_{d(off)}$		-	28.2	-	ns
Turn-off Fall Time	t_f		-	5.5	-	ns
Maximum Continuous Drain to Source Diode Forward Current	I_S		-	-	50	A
Maximum Pulsed Drain to Source Diode Forward Current	I_{SM}		-	-	200	A
Drain to Source Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=30A	-	-	1.2	V
Body Diode Reverse Recovery Time	t_{rr}	I_F=30A, dI/dt=100A/μs	-	28	-	ns
Body Diode Reverse Recovery Charge	Q_{rr}		-	40	-	nC

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. EAS condition : TJ=25℃,VDD=30V,VG=10V,L=0.5mH,Rg=25Ω,IAS=16A
3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

Typical Characteristics

Figure1: Output Characteristics

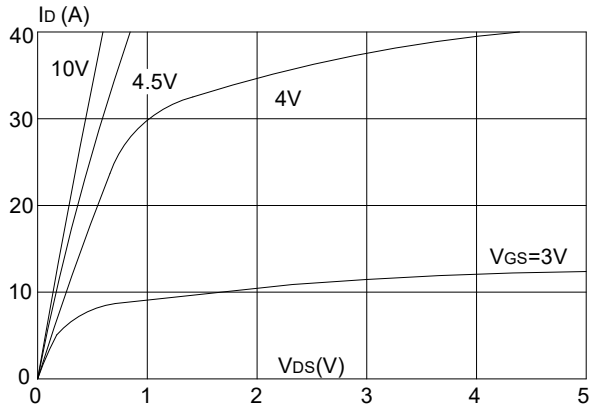


Figure 2: Typical Transfer Characteristics

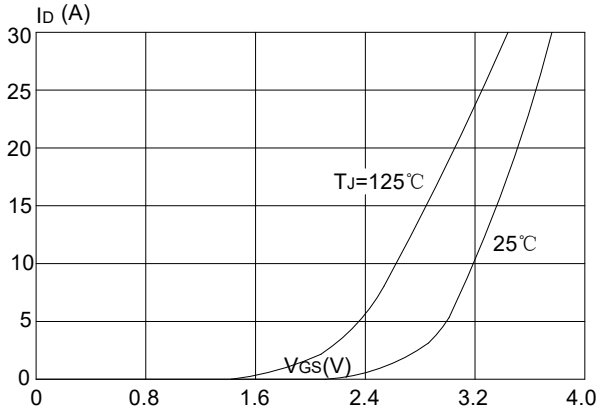


Figure 3:On-resistance vs. Drain Current

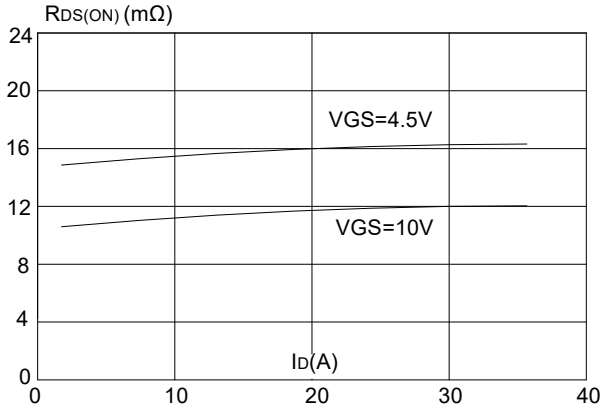


Figure 4: Body Diode Characteristics

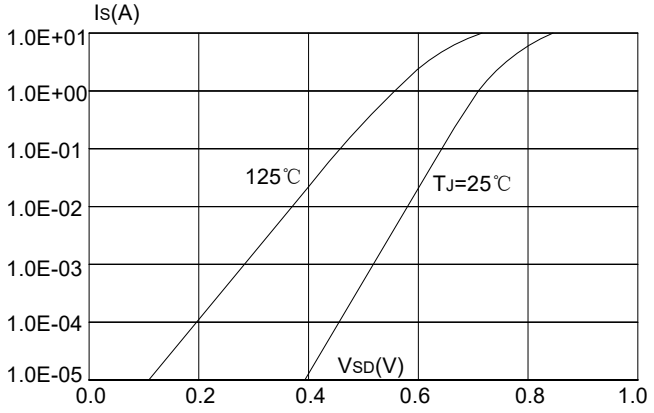


Figure 5: Gate Charge Characteristics

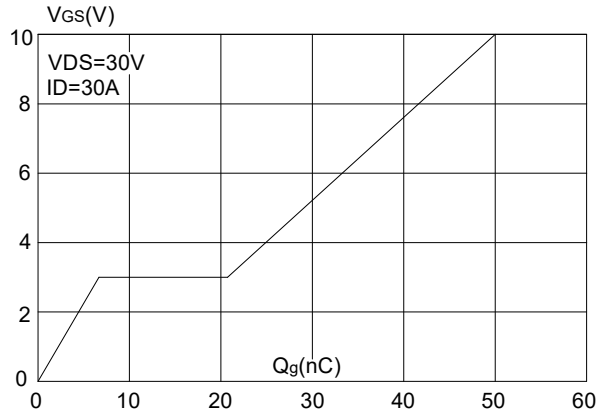


Figure 6: Capacitance Characteristics

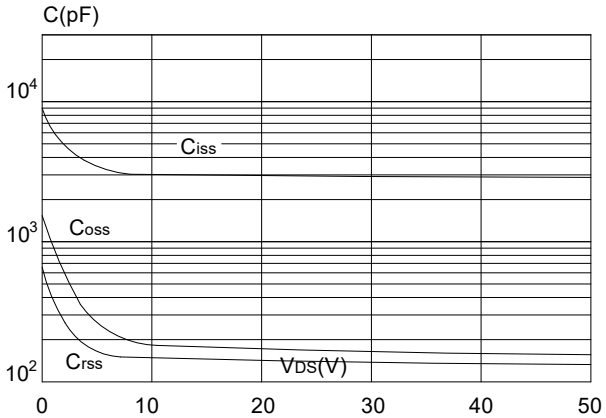


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

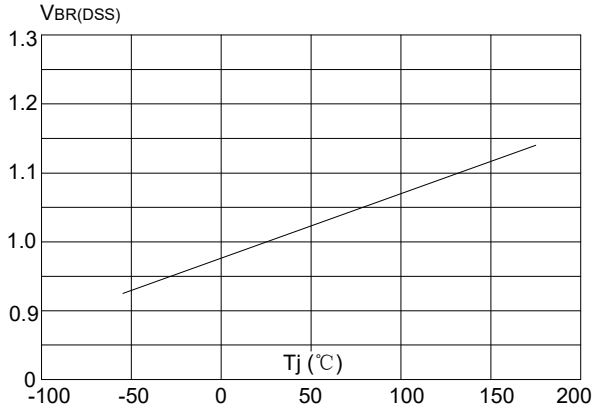


Figure 8: Normalized on Resistance vs. Junction Temperature

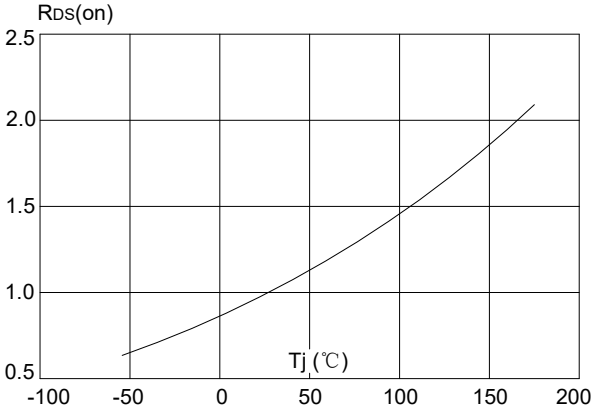


Figure 9: Maximum Safe Operating Area

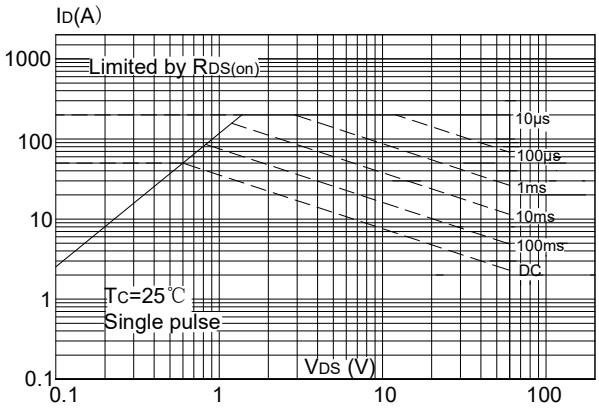


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

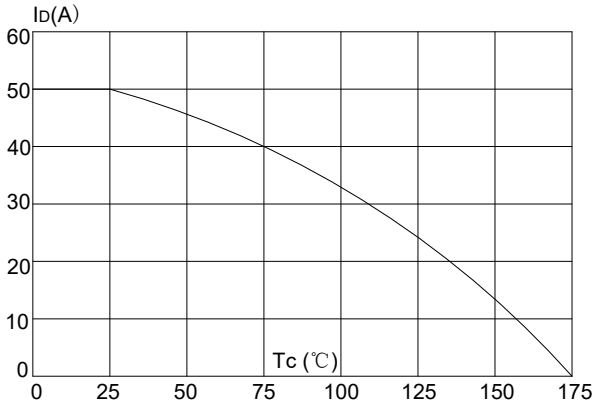
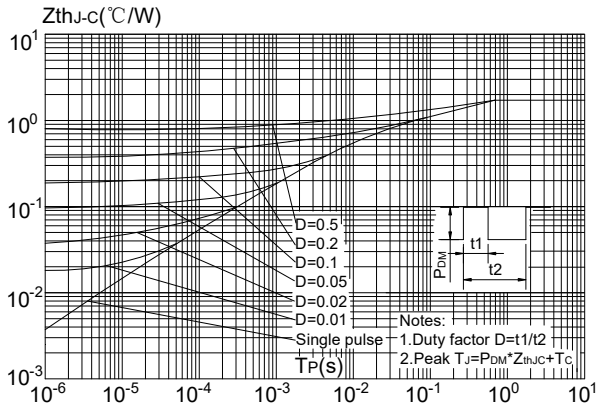
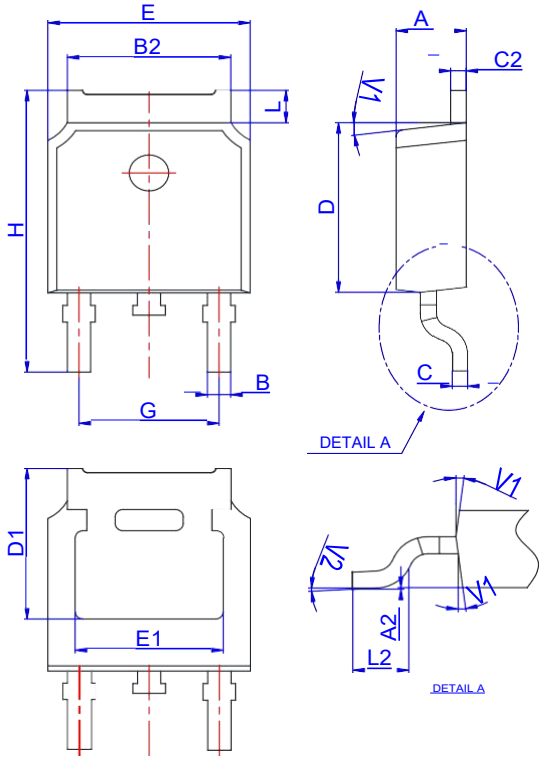


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



Package Outlines Dimensions (Units: mm)

TO-252



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.10		2.50	0.083		0.098
A2	0		0.10	0		0.004
B	0.66		0.86	0.026		0.034
B2	5.18		5.48	0.202		0.216
C	0.40		0.60	0.016		0.024
C2	0.44		0.58	0.017		0.023
D	5.90		6.30	0.232		0.248
D1	5.30REF			0.209REF		
E	6.40		6.80	0.252		0.268
E1	4.63			0.182		
G	4.47		4.67	0.176		0.184
H	9.50		10.70	0.374		0.421
L	1.09		1.21	0.043		0.048
L2	1.35		1.65	0.053		0.065
V1		7°			7°	
V2	0°		6°	0°		6°

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