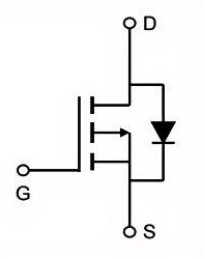
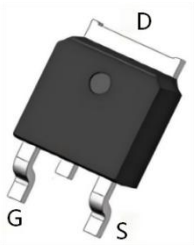
P-Channel Enhancement Mode MOSFET

Parameter	Value	Unit
V_{DS}	-30	V
$R_{DS(on)}$	25	mΩ
I_D	-25	A





TO-252

Features

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

Applications

- Battery protection
- Load switch
- Power management

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

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	Ta=25℃	I_D	-25	A
Continuous Drain Current	Ta=100℃	I_D	-15	
Pulsed Drain Current [2]		I_{DM}	-40	A
Single Pulse Avalanche Energy [3]		E_{AS}	25	mJ
Avalanche Current		I_{AS}	-10	A
Total Power Dissipation [4]	Ta=25℃	P_D	4.0	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]	$R_{\theta JA}$	--	35	℃/W

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

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D= -250μA	-30	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}= -30V, V_{GS}=0V	-	-	-1	μA
Gate to Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}= ±20V	-	-	±100	nA
On Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} , I_D= -250μA	-1.0	-1.5	-2.5	V
Static Drain-Source on-Resistance note3	$R_{DS(on)}$	V_{GS}= -10V, I_D= -7A	-	25	35	mΩ
		V_{GS}= -4.5V, I_D= -4A	-	38	54	
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}= -15V, V_{GS}=0V f=1.0MHz	-	982	-	pF
Output Capacitance	C_{oss}		-	135	-	pF
Reverse Transfer Capacitance	C_{rss}		-	109	-	pF
Total Gate Charge	Q_g	V_{DS}= -15V, I_D= -4A V_{GS}= -10V	-	10	-	nC
Gate-Source Charge	Q_{gs}		-	2	-	nC
Gate-Drain(“Miller”) Charge	Q_{gd}		-	2.7	-	nC
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}= -15V, I_D= -7A V_{GS}= -10V, R_{GEN}=2.5Ω	-	11	-	ns
Turn-on Rise Time	t_r		-	19	-	ns
Turn-off Delay Time	$t_{d(off)}$		-	45	-	ns
Turn-off Fall Time	t_f		-	26	-	ns
Drain.Source Diode Characteristics and Maximum Ratings						
Maximum Continuous Drain to Source Diode Forward Current	I_S		-	-	-25	A
Maximum Pulsed Drain to Source Diode Forward Current	I_{SM}		-	-	-40	A
Drain to Source Diode Forward Voltage	V_{SD}	V_{GS}=0V, IS= -7A	-	-0.8	-1.2	V

Notes:
1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. Pulse Test: Pulse Width≤300us, Duty Cycle≤2%

Typical Characteristics

Figure1: Output Characteristics

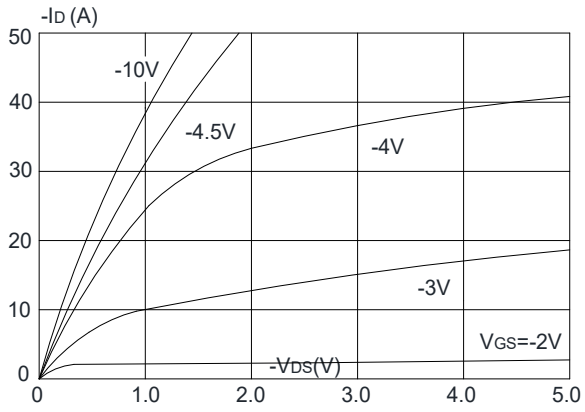


Figure 2: Typical Transfer Characteristics

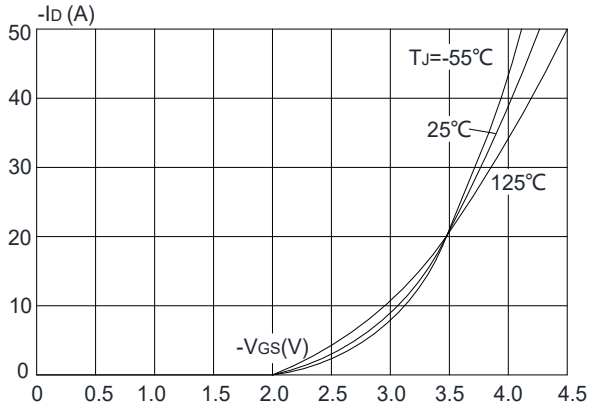


Figure 3: On-resistance vs. Drain Current

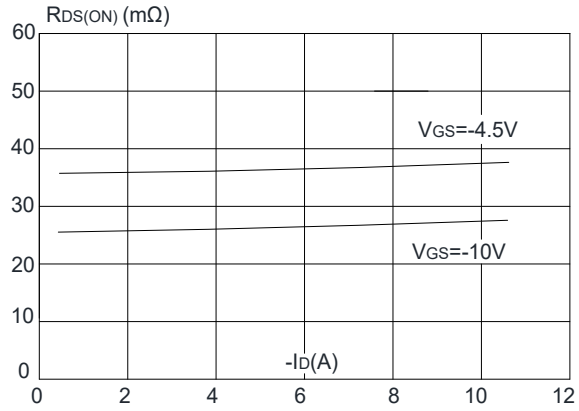


Figure 4: Body Diode Characteristics

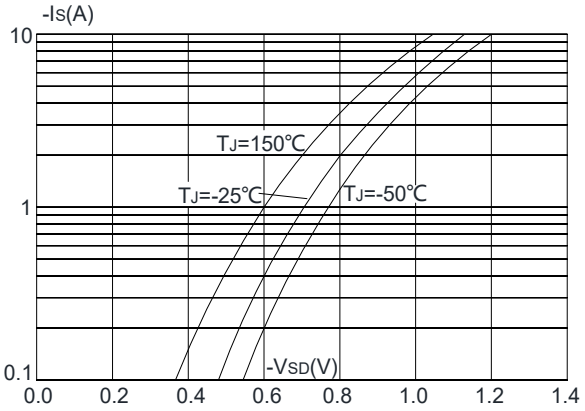


Figure 5: Gate Charge Characteristics

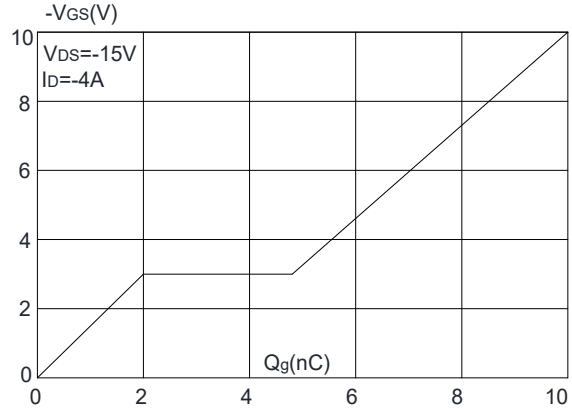


Figure 6: Capacitance Characteristics

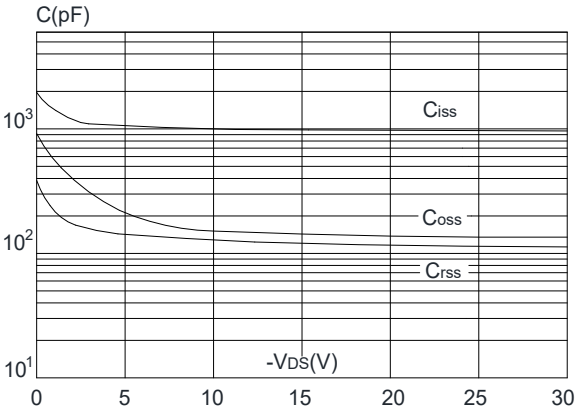


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

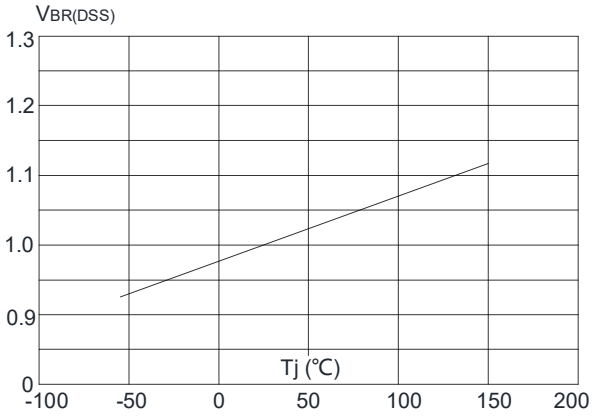


Figure 8: Normalized on Resistance vs. Junction Temperature

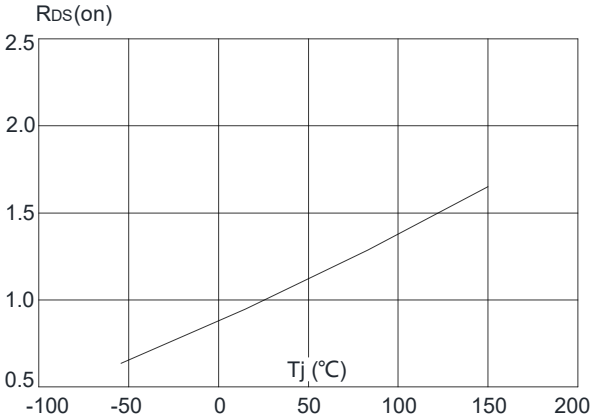


Figure 9: Maximum Safe Operating Area

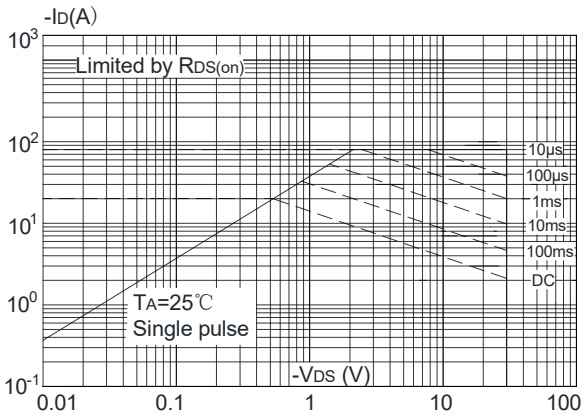


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

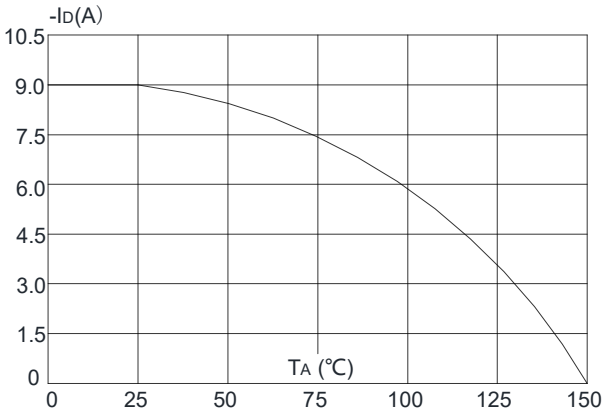
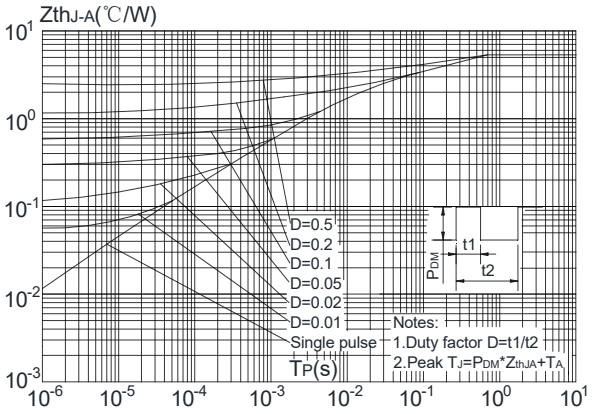
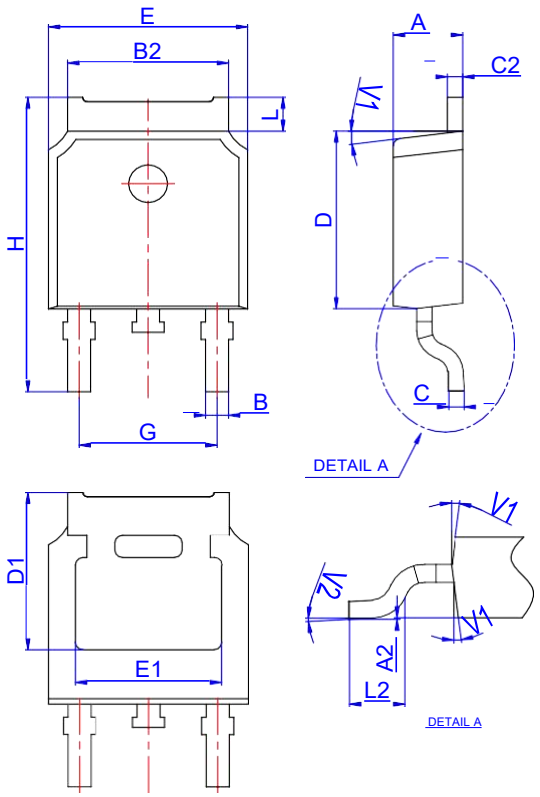


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient



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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