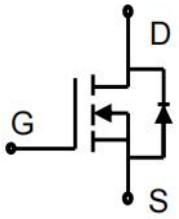
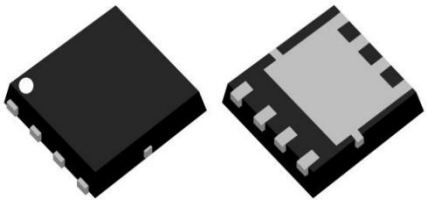
N-Channel Enhancement Mode MOSFET

Parameter	Value	Unit
V_{DS}	40	V
$R_{DS(on)}$	4.5	mΩ
I_D	74	A





PDFN3x3

Features

- Advanced Trench Process Technology
- Low Threshold Voltage
- Fast Switching Speed

Applications

- Motor/Body Load Control
- Load Switch
- DC-DC converters

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

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	40	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current [123]		I_D	74	A
Power Dissipation [12]		P_{tot}	50	W
Avalanche Current		I_{AS}	27	A
Single Pulse Avalanche Energy	L=0.3mH	E_{AS}	150	mJ
Operating Junction		T_J	-55~ 150	℃
Storage Temperature Range		T_{STG}	-55~ 150	℃

Thermal Characteristics

Parameter	Symbol	Typ.	Max.	Unit
Thermal Resistance Junction-Ambient [2]	$R_{\theta JA}$	---	47.7	℃/W
Thermal Resistance from Junction-to-Case [2]	$R_{\theta JC}$	---	3.0	℃/W

Notes:
1). The entire application environment impacts the thermal resistance values shown, they are not constants and are only valid for the particular conditions noted.
2). Surface-mounted on FR4 board using a 650 mm2 , 2 oz. Cu pad.
3). Continuous DC current rating. Maximum current for pulses as long as 1 second is higher but is dependent on pulse duration and duty cycle.

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

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=250μA	40	-	-	V
Gate-body Leakage current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V	-	-	±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=40V, V_{GS}=0V	-	-	1	uA
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	1.0	-	2.5	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=30A	-	4.5	6	mΩ
		V_{GS}=4.5V, I_D=20A	-	6.5	9	
Gate resistance	R_g	V_{DS}=0 V, f=1MHz	-	2.5	-	Ω
Forward Transconductance	g_{fs}	V_{DS}=5V, I_D=6A	-	72	-	S
Input Capacitance	C_{iss}	V_{DS}=25V, V_{GS}=0V, f=1MHz	-	1300	-	pF
Output Capacitance	C_{oss}		-	530	-	
Reverse Transfer Capacitance	C_{rss}		-	22	-	
Total Gate Charge	Q_g	V_{GS}=10V,V_{DS}=20V, I_D=35A	-	2.5	-	nC
Gate-Source Charge	Q_{gs}		-	4.7	-	
Gate-Drain Charge	Q_{gd}		-	3	-	
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=10V,V_{DS}=20V, I_D=35A	-	9.3	-	ns
Rise Time	t_r		-	97	-	
Turn-Off Delay Time	$t_{d(off)}$		-	17	-	
Fall Time	t_f		-	4	-	
Body Diode Reverse Recovery Time	t_{rr}	I_F=35A, dI/dt=100A/μs	-	29	-	ns
Body Diode Reverse Recovery Charge	Q_{rr}		-	12	-	nC
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=40A	-	-	1.2	V

Typical Characteristics

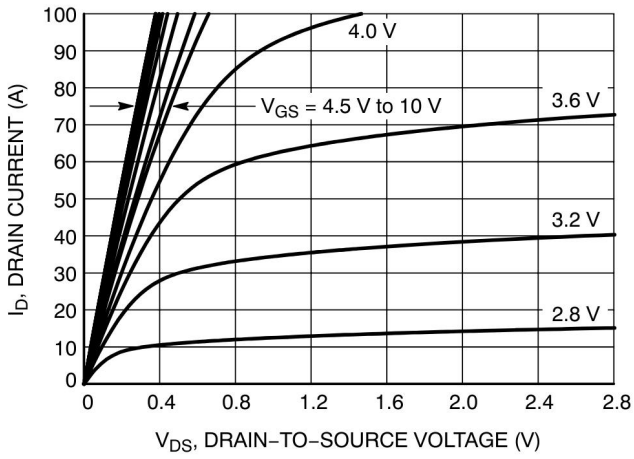


Figure 1. On−Region Characteristics

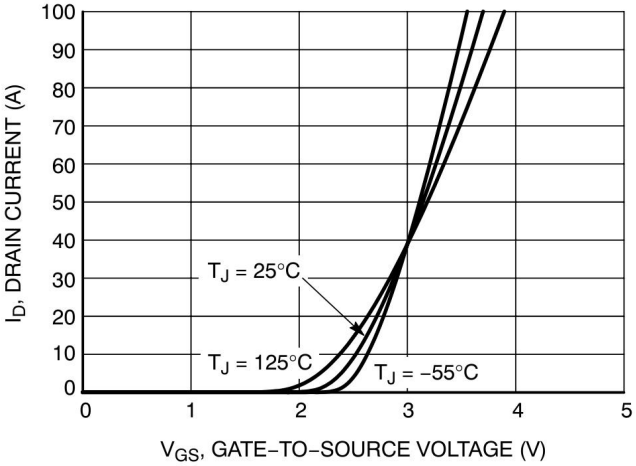


Figure 2. Transfer Characteristics

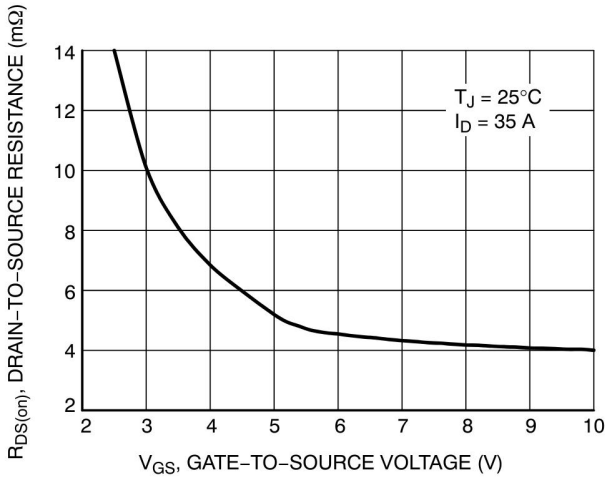


Figure 3. On−Resistance vs. Gate−to−Source Voltage

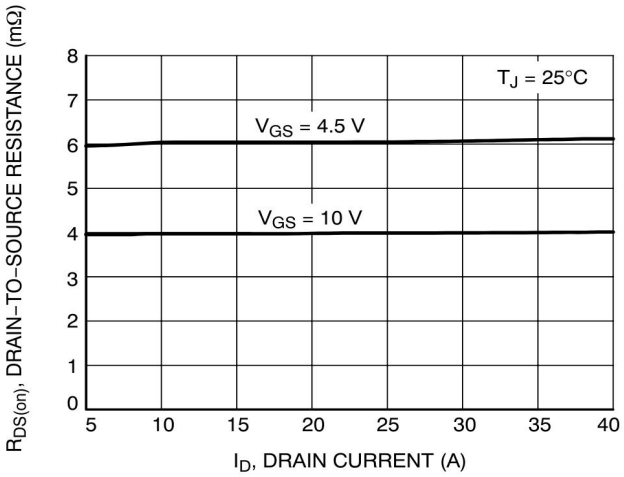


Figure 4. On−Resistance vs. Drain Current and Gate Voltage

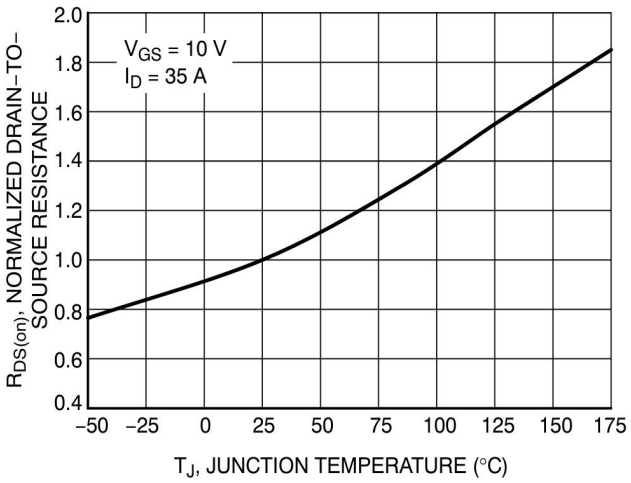


Figure 5. On−Resistance Variation with Temperature

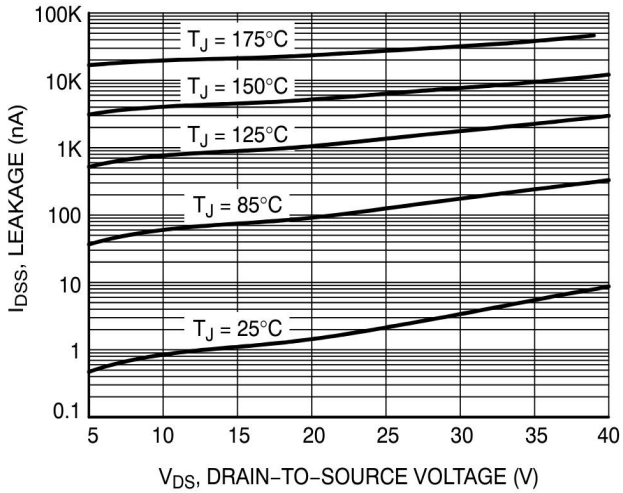


Figure 6. Drain−to−Source Leakage Current vs. Voltage

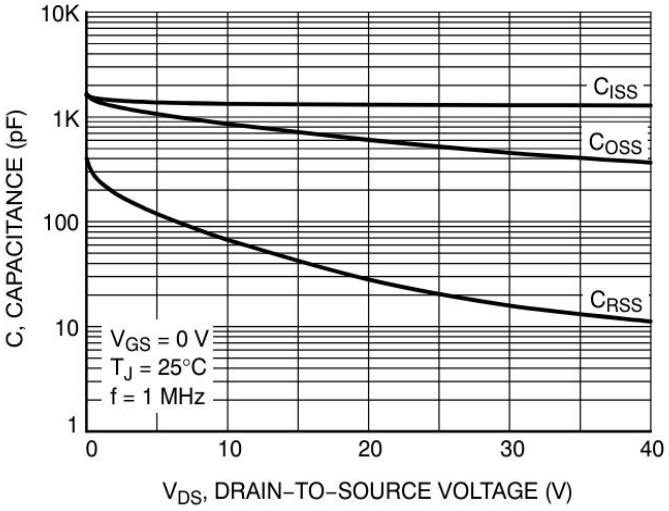


Figure 7. Capacitance Variation

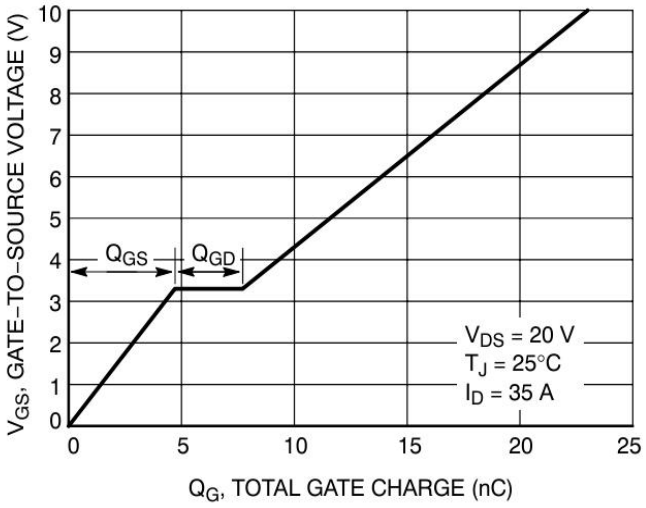


Figure 8. Gate−to−Source vs. Total Charge

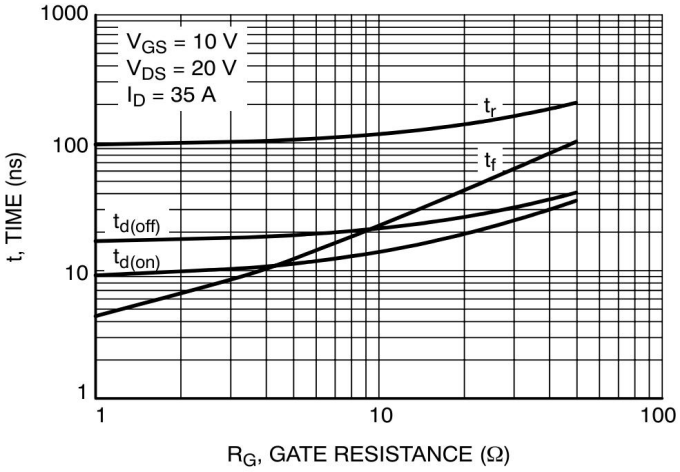


Figure 9. Resistive Switching Time Variation

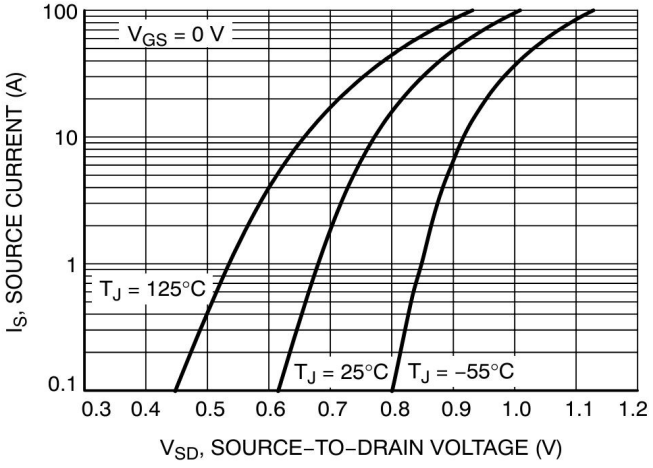


Figure 10. Diode Forward Voltage vs. Current

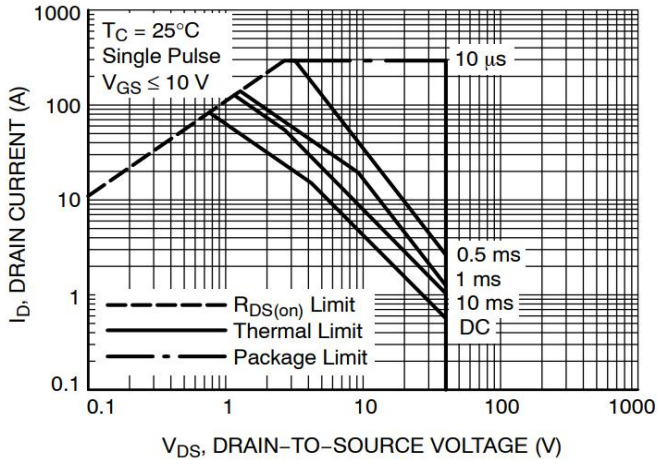


Figure 11. Maximum Rated Forward Biased Safe Operating Area

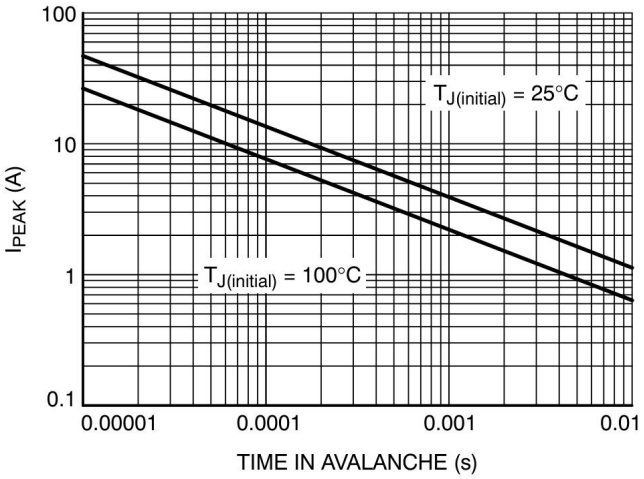


Figure 12. Maximum Drain Current vs. Time in Avalanche

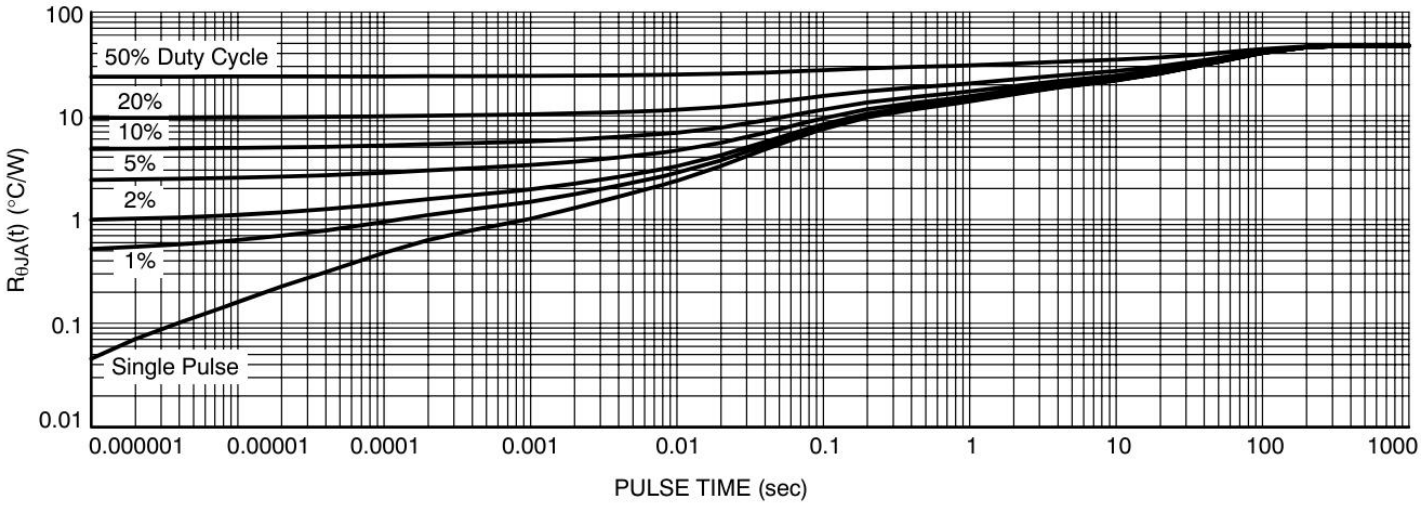
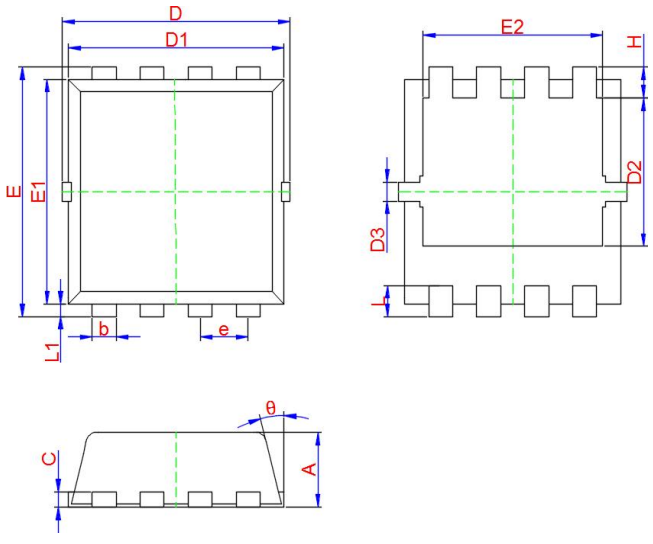


Figure 13. Thermal Response

Package Outlines



Symbol	Dimensions in mm		
	Min.	Typ.	Max.
A	0.650	0.770	0.900
b	0.250	0.300	0.350
c	0.100	0.150	0.250
D	3.150	3.300	3.400
D1	2.950	3.100	3.200
D2	1.600	1.800	1.930
D3	-	0.130	-
E	3.050	3.300	3.450
E1	2.950	3.150	3.200
E2	2.300	2.400	2.550
e	0.650 TYP.		
H	0.330	0.430	0.530
L	0.300	0.400	0.500
L1	0.080	0.130	0.180
θ	-	10°	-

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