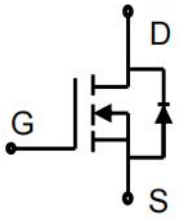
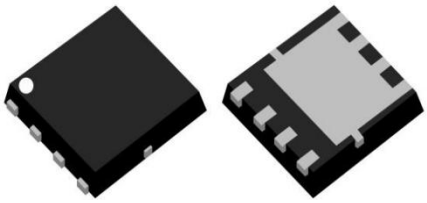
N-Channel Enhancement Mode MOSFET

Parameter	Value	Unit
V_{DS}	40	V
$R_{DS(on)}$	3.3	mΩ
I_D	85	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 [12]		I_D	85	A
Power Dissipation [12]		P_{tot}	55	W
Avalanche Current		I_{AS}	36	A
Single Pulse Avalanche Energy	L=0.3mH	E_{AS}	220	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	℃/W
Thermal Resistance from Junction-to-Case [2]	$R_{\theta JC}$	---	2.7	℃/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.

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	1.2	-	2.2	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=30A	-	3.3	4.3	mΩ
		V_{GS}=4.5V, I_D=20A	-	5.4	7.5	
Gate resistance	R_g	V_{DS}=0 V, f=1MHz	-	1.4	-	Ω
Forward Transconductance	g_{fs}	V_{DS}=5V, I_D=6A	-	80	-	S
Input Capacitance	C_{iss}	V_{DS}=25V, V_{GS}=0V, f=1MHz	-	1600	-	pF
Output Capacitance	C_{oss}		-	590	-	
Reverse Transfer Capacitance	C_{rss}		-	21	-	
Total Gate Charge	Q_g	V_{GS}=4.5V,V_{DS}=20V, I_D=40A	-	8.2	-	nC
Gate-Source Charge	Q_{gs}		-	3.8	-	
Gate-Drain Charge	Q_{gd}		-	2.1	-	
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=4.5V,V_{DS}=20V, I_D=40A	-	9.3	-	ns
Rise Time	t_r		-	100	-	
Turn-Off Delay Time	$t_{d(off)}$		-	17	-	
Fall Time	t_f		-	4	-	
Body Diode Reverse Recovery Time	t_{rr}	I_F=40A, dI/dt=100A/μs	-	29	-	ns
Body Diode Reverse Recovery Charge	Q_{rr}		-	20	-	nC
Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=40A	-	-	1.2	V

Typical Characteristics

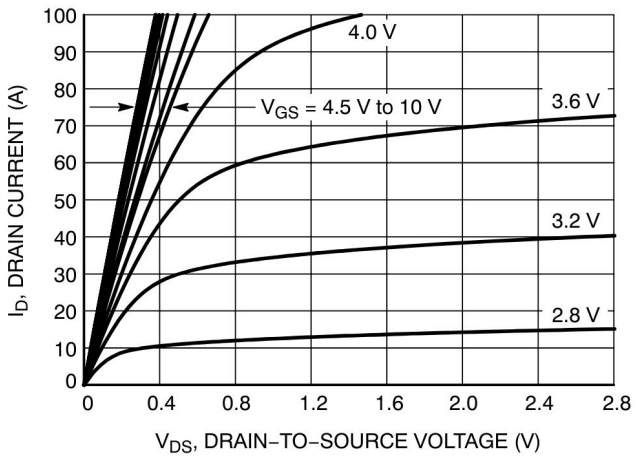


Figure 1. On−Region Characteristics

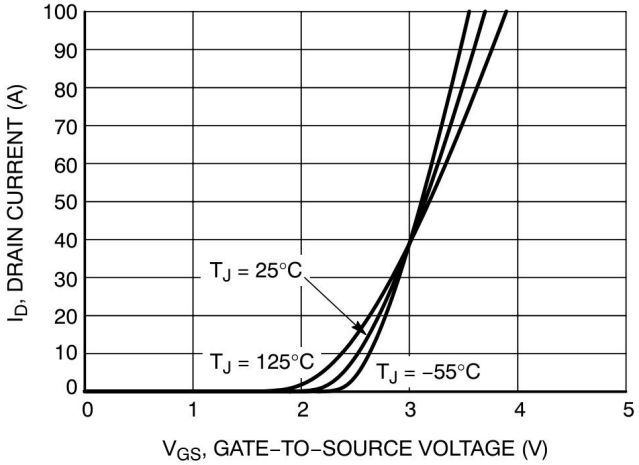


Figure 2. Transfer Characteristics

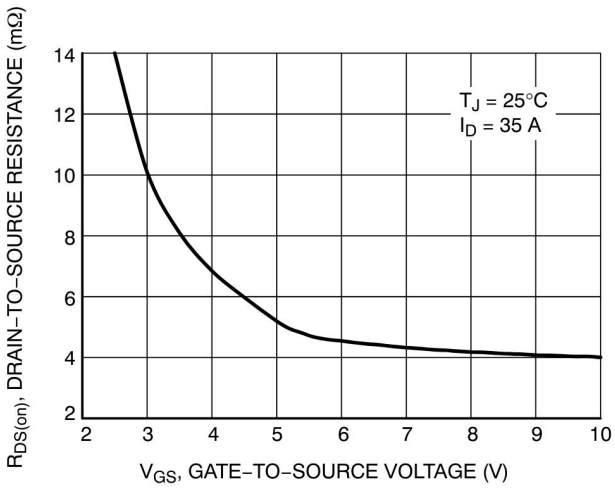


Figure 3. On−Resistance vs. Gate−to−Source Voltage

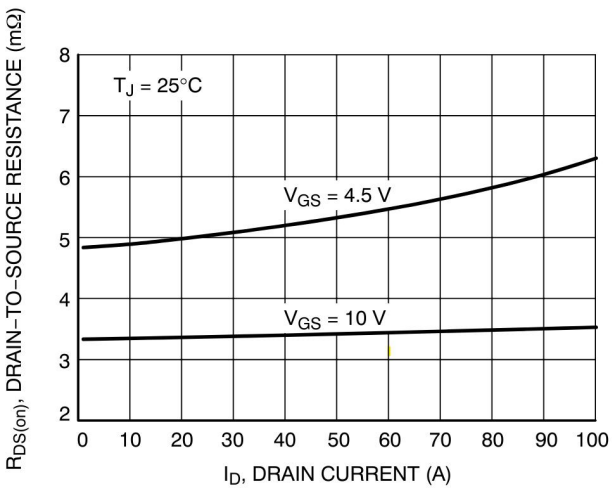


Figure 4. On−Resistance vs. Drain Current and Gate Voltage

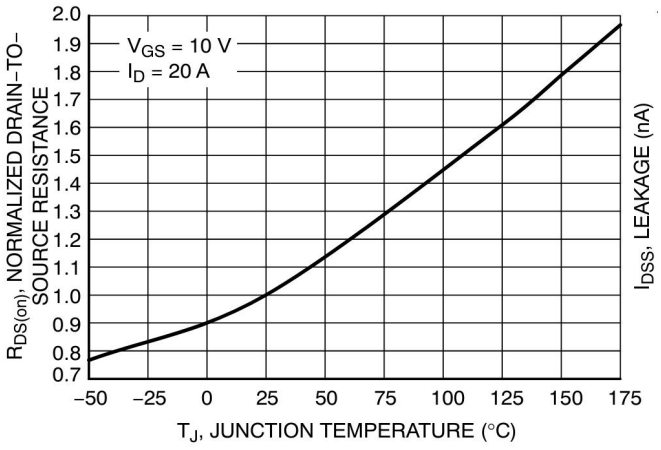


Figure 5. On−Resistance Variation with Temperature

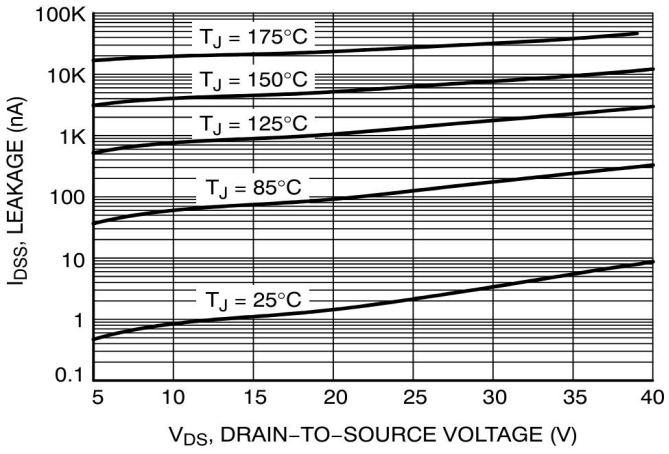


Figure 6. Drain−to−Source Leakage Current vs. Voltage

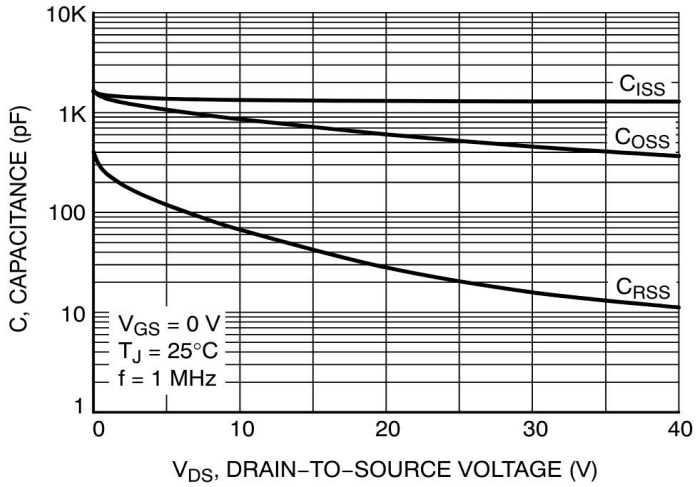


Figure 7. Capacitance Variation

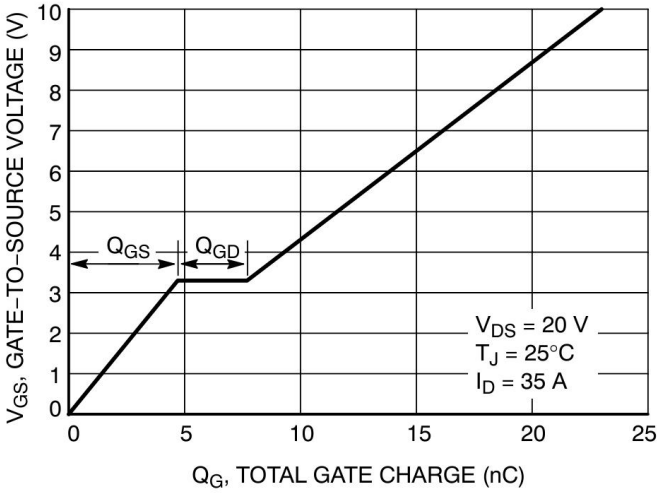


Figure 8. Gate−to−Source vs. Total Charge

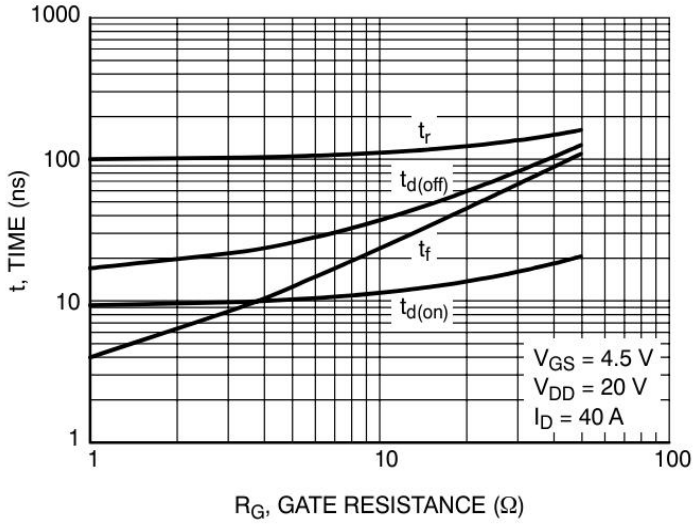


Figure 9. Resistive Switching Time Variation vs. Gate Resistance

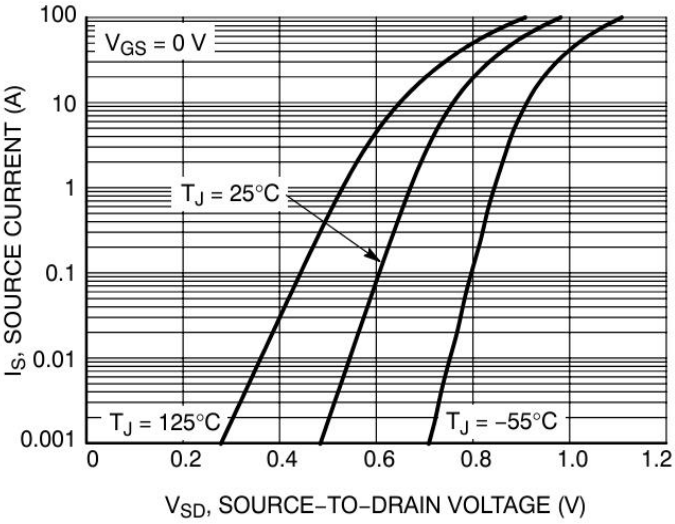


Figure 10. Diode Forward Voltage vs. Current

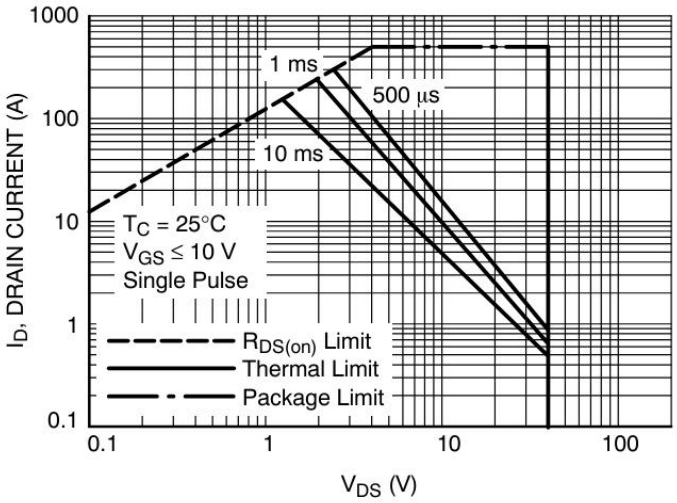


Figure 11. Safe Operating Area

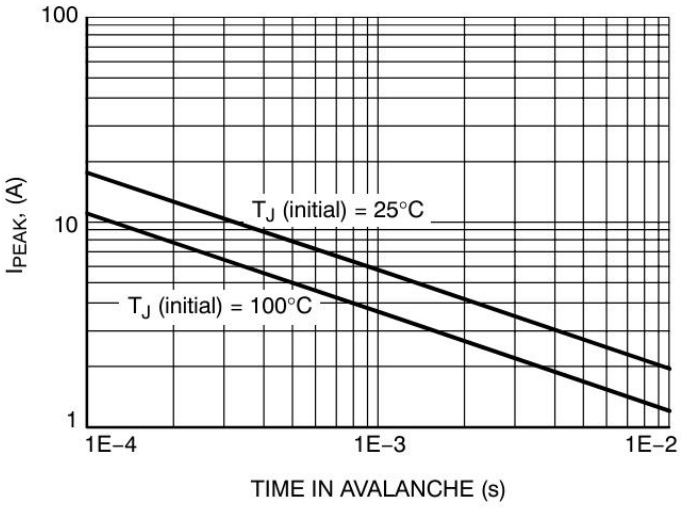
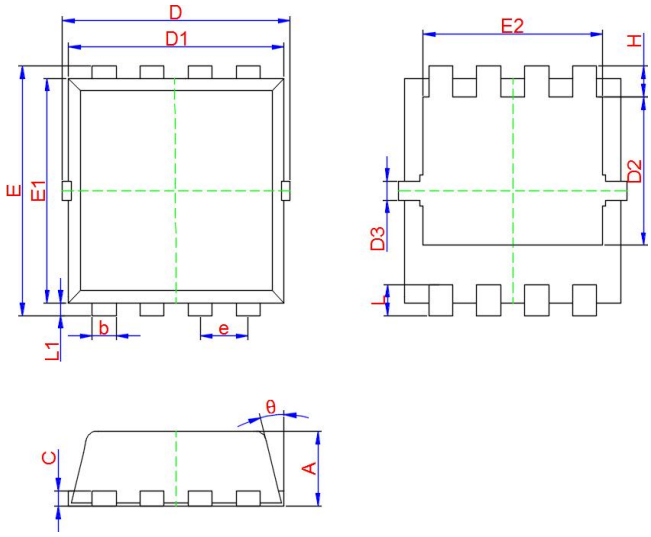


Figure 12. I_{PEAK} vs. Time in Avalanche

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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