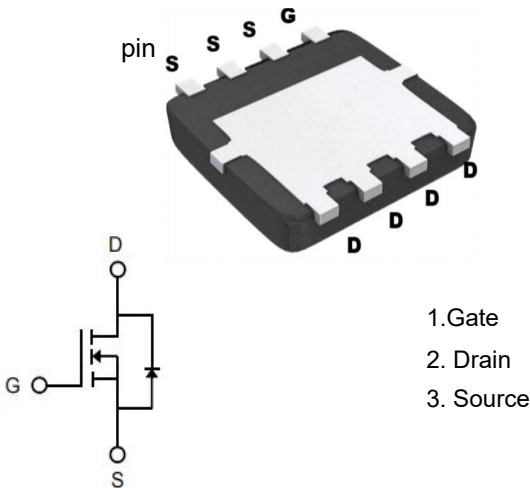




1.Features

- V_{DS} 60V
- I_D (at $V_{GS}=10V$) 38A
- $R_{DS(on)}$ (at $V_{GS}=10V$) 10mΩ(Typ)

PDFN3*3



- 1. Gate
- 2. Drain
- 3. Source

2.Mechanical Data

- Case:Molded Plastic,PDFN3*3;
- Epoxy:UL 94V-0 rate flame retardant
- Terminals:Plated Leads Solderable per MIL-STD-750,Method-2026.
- Marking: marked on body.
- Mounting Position : Any.

3.Absolute Maximum Ratings

Electrical Characteristics ($T_A=25^{\circ}C$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	I_D	38	A
		24	
Pulsed Drain Current	I_{DM}	150	A
Power Dissipation	P_D	31	W
Single Pulsed Avalanche energy	E_{AS}	150	mJ
Junction Temperature	T_J	-55~+150	$^{\circ}C$
Storage Temperature	T_{STG}	-55~+150	$^{\circ}C$
Thermal Resistance from Junction to Case	$R_{\theta JC}$	4	$^{\circ}C/W$
Junction-to-Ambient Thermal Resistance	$R_{\theta JA}$	65	$^{\circ}C/W$

**4. Electrical Characteristics**

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	

Off Characteristics

Drain-source breakdown voltage	B_{VDSS}	$V_{GS}=0V, I_D = 250\mu A$	60	-		V
Gate-source leakage current	I_{DSS}	$V_{DS}=60V, V_{GS}=0V$	-	-	1	μA
Gate threshold voltage	I_{GSS}	$V_{GS} = \pm 20V$	-	-	± 100	nA

On Characteristics

Drain-to-Source Leakage Current	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	1.6	2.5	V
Drain-to-Source On-Resistance	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 20A$	-	10	12.5	$m\Omega$
		$V_{GS} = 4.5V, I_D = 15A$	-	12.3	16.0	$m\Omega$

Dynamic Parameters

Input Capacitance	C_{iss}	$V_{DS} = 30V, V_{GS}=0V$ $f=1.0MHz$	-	730	-	pF
Output Capacitance	C_{oss}		-	220	-	
Reverse Transfer Capacitance	C_{rss}		-	7.4	-	

Switching Parameters

Turn-on Delay Time	$t_{d(on)}$	$V_{DS}=30V, V_{GEN}=10V$ $R_g=6\Omega, I_D=1A$	-	3.7	-	nS
Turn-on Rise Time	t_r		-	4.3	-	
Turn-off Delay Time	$t_{d(off)}$		-	16	-	
Turn-off Fall Time	t_f		-	6.5	-	
Total Gate Charge	Q_g	$V_{DS}=30V, I_D=20A$ $V_{GS}=10V$	-	14	-	nC
Gate-Source Charge	Q_{gs}		-	1.6	-	
Gate-Drain Charge	Q_{gd}		-	3.1	-	

Drain-Source Diode Characteristics

Forward Voltage	V_{SD}	$V_{GS} = 0V, I_{SD} = 10A$	-	-	1.3	V
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Notes:

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. $V_{DD}=30V, L=0.1mH$, Starting $T_J=25^\circ C$
3. The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
4. Essentially independent of operating temperature.



5. Rating And Characteristic Curves

Fig. 1 Saturation Characteristics

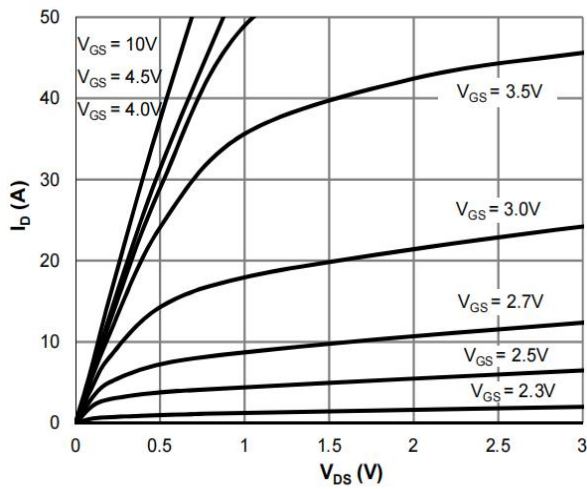


Fig 2 Transfer Characteristics

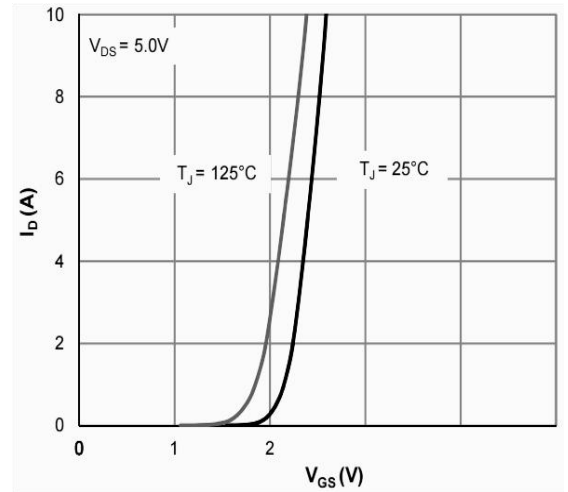


Fig.3 $R_{DS(ON)}$ vs. Drain Current

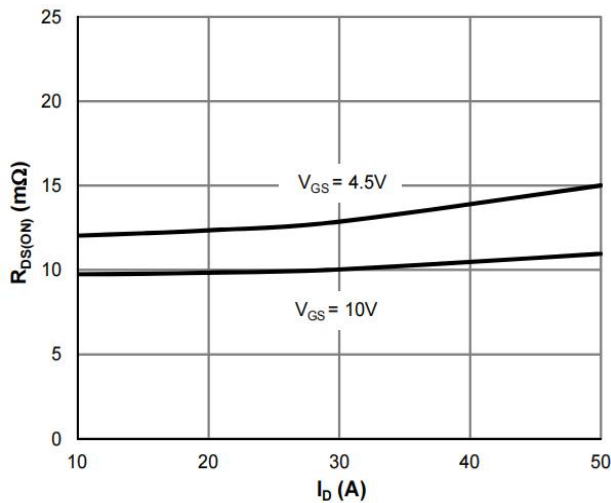


Fig.4 $R_{DS(ON)}$ vs. Junction Temperature

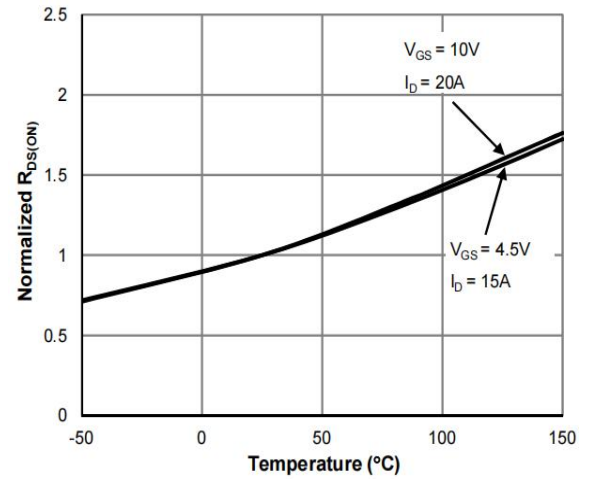


Fig.5 Body-Diode Characteristics

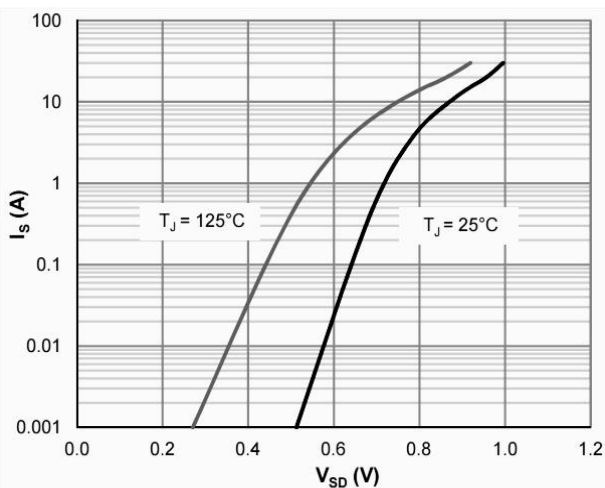


Fig.6 Capacitance Characteristics

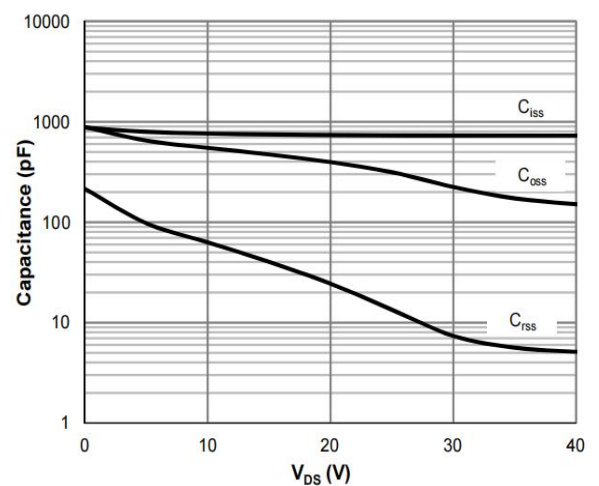




Fig. 7 Current De-rating

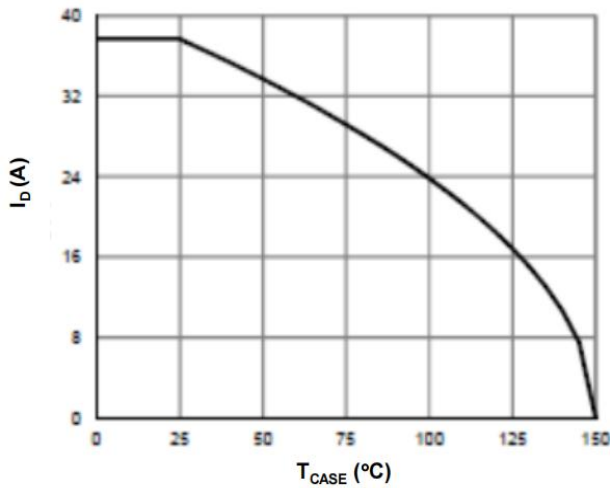


Fig 8 Power De-rating

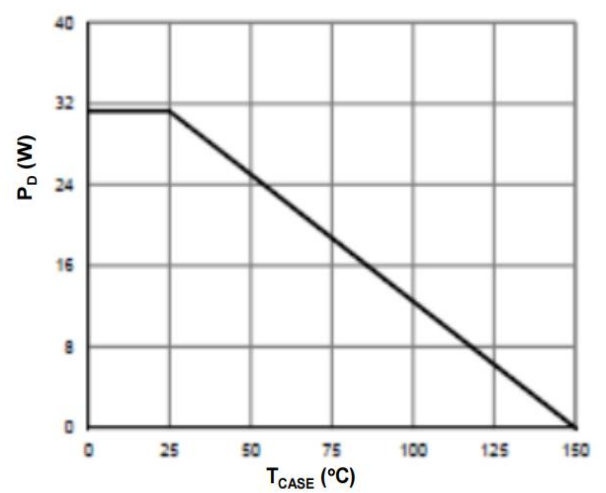


Fig.9 Maximum Safe Operating Area

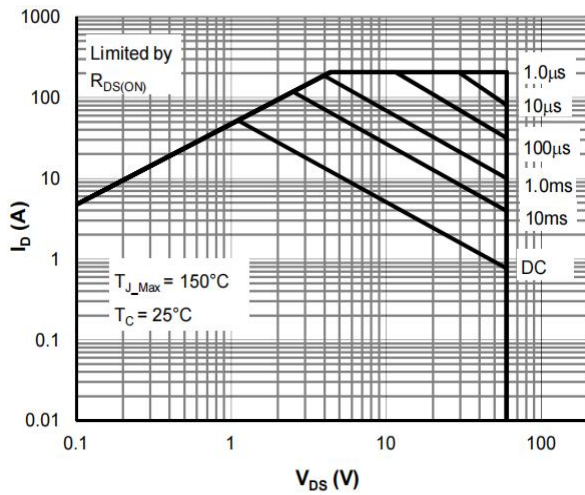


Fig.10 Single Pulse Power Rating, Junction-to-Case

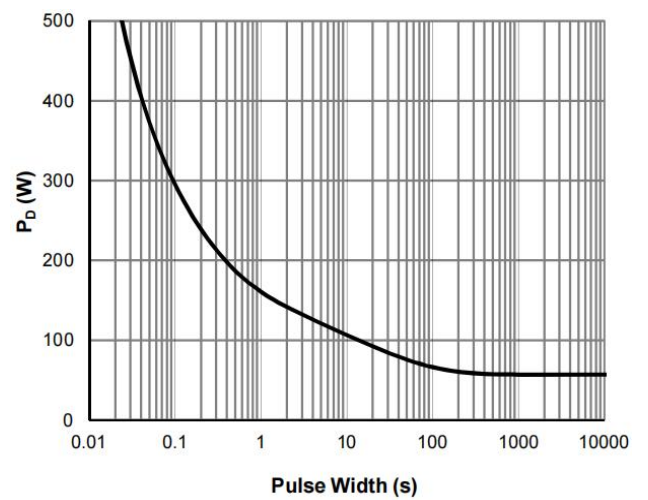
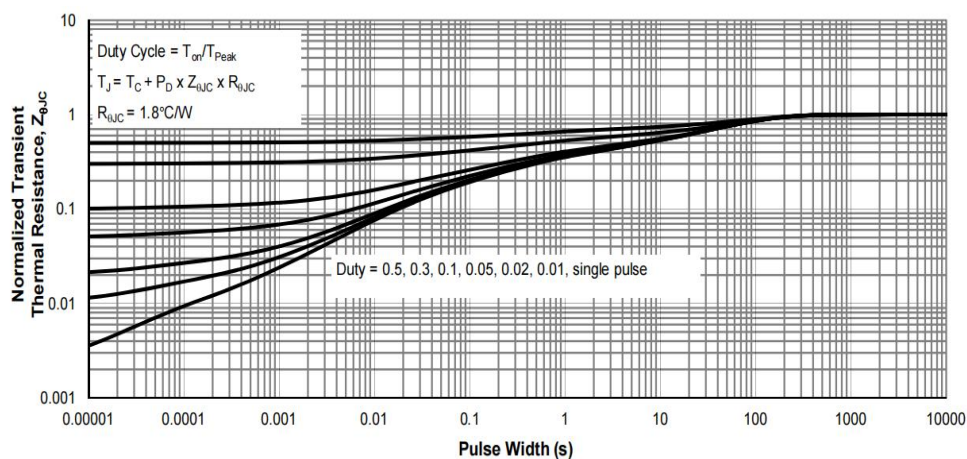


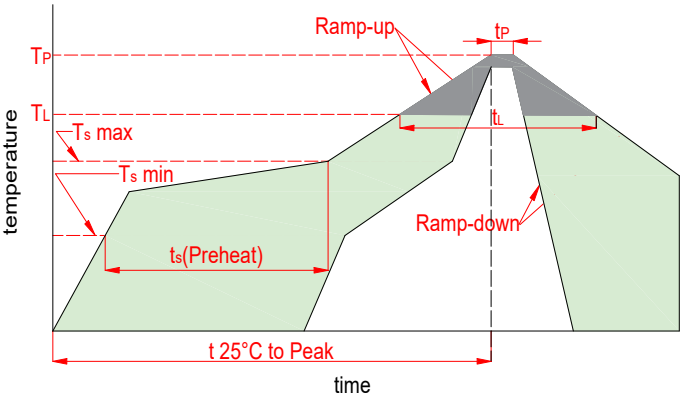
Fig.11 Normalized Maximum Transient Thermal Impedance



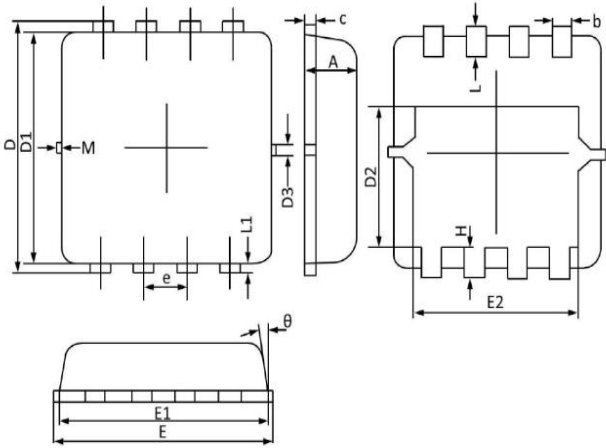


7.Rating And Characteristic Curves

Reflow Condition		Lead-free
Pre Heat	Temp. min(T_s (min))	150℃
	Temp. max(T_s (min))	200℃
	Time(min to max)(t_s)	60~180s
Aver. ramp up rate(Liquidus Temp.)(T_L)to peak		3℃/s max
T_s (max) to T_L -Ramp-up Rate		3℃/s max
Reflow	Temp.(T_L)(Liquidus)	217℃
	Temp.(t_L)(Liquidus)	60~150s
Peak Temp.(T_P)		260 ^{+0/-5} ℃
Time within actual peak Temp.(t_p)		30s max
Ramp-down Rate		6℃/s max
Time 25℃ to peak Tempe.(T_p)		8 minutes max
Do not exceed		260℃



8.Package Drawing



Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.026	0.035	0.67	0.88
b	0.010	0.014	0.25	0.35
C	0.004	0.010	0.10	0.25
D	0.124	0.140	3.15	3.55
D1	0.118	0.130	3.00	3.30
D2	0.059	0.079	1.50	2.00
D3	0.005	0.008	0.13	0.20
E	0.122	0.138	3.10	3.50
E1	0.118	0.126	3.00	3.20
E2	0.093	0.102	2.35	2.60
e	0.026 BSC		0.65BSC	
H	0.012	0.020	0.30	0.50
L	0.012	0.020	0.30	0.50
L1	0.005 REF		0.130 REF	
M	0.006 REF		0.150 REF	

9. Package Information

Part Number	Package	Quantity(pcs)
XNM38N06D3	PDFN3*3	5000



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