



1. Features

- V_{DS} -30V
- I_D (at $V_{GS}=10V$) -99A
- $R_{DS(ON)}$ (at $V_{GS}=-10V$) 2.8m Ω (Typ)
- $R_{DS(ON)}$ (at $V_{GS}=-4.5V$) 4.0m Ω (Typ)

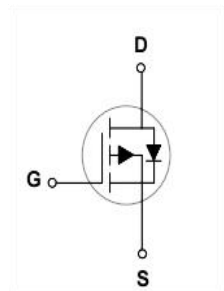
2. Mechanical Data

- Case:Molded Plastic,PDFN5*6 .
- Epoxy:UL 94V-0 rate flame retardant
- Terminals:Plated Leads Solderable perMIL-STD-750,Method-2026.
- Marking:90N03
- Mounting Position : Any.

PDFN5*6



- 1 Gate
- 2 Source
- 3 Drain



3. Maximum Ratings and Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified.

Parameter		Symbol	Value	UNIT
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_C = 25^\circ\text{C}$	I_D	-99	A
	$T_C = 100^\circ\text{C}$		-62	
Drain Current-Pulsed ¹		I_{DM}	-396	A
Power Dissipation		P_{tot}	58	W
Thermal Resistance from Junction to Lead		$R_{\theta JC}$	2.15	°C/W
Thermal Resistance from Junction to Ambient ²		$R_{\theta JA}$	62	°C/W
Junction and Storage Temperature Range		T_J, T_{STG}	-55~ +150	°C



4. Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified.

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Off Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	-30	-	-	V
Zero gate voltage drain current	I_{DSS}	$V_{DS} = -30V, V_{GS} = 0V$	-	-	-1	μA
Gate-source leakage current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$	-	-	± 100	nA
On characteristics ³						
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS} = -10V, I_D = 20A$	-	2.8	3.6	m Ω
		$V_{GS} = -4.5V, I_D = 20A$	-	4	5.8	m Ω
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1	-1.7	-2.5	V
Dynamic Characteristics ⁴						
Input capacitance	C_{iss}	$V_{DS} = -15V, V_{GS} = 0V, f = 1MHz$	-	7000	-	pF
Output capacitance	C_{oss}		-	820	-	pF
Reverse transfer capacitance	C_{rss}		-	540	-	pF
Switching Characteristics ⁴						
Gate charge total	Q_g	$V_{DS} = -15V, I_D = -20A, V_{GS} = -10V$	-	130	-	nC
Gate-Source Charge	Q_{gs}		-	12	-	nC
Gate-Drain Charge	Q_{gd}		-	31	-	nC
Turn-on delay time	$t_{d(on)}$	$V_{GS} = -10V, V_{DS} = -15V, R_L = 0.75\Omega, R_{GEN} = 3\Omega$	-	13	-	nS
Turn-on rise time	t_r		-	32	-	nS
Turn-off delay time	$t_{d(off)}$		-	27	-	nS
Turn-off fall time	t_f		-	9	-	nS
Source-Drain Diode characteristics ⁴						
Body Diode Voltage	V_{SD}	$I_{SD} = -20A, V_{GS} = 0V$	-	-	1.2	V

Notes :

1.Repetitive Rating : Pulsed width limited by maximum junction temperature.

2. $V_{DD} = -25V, V_{GS} = -10V, L = 0.5mH, R_g = 25\Omega$, Starting $T_j = 25^\circ C$.

3.The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

3.Essentially independent of operating temperature.



5. Rating And Characteristic Curves

Fig1: Continuous Drain Current vs. T_C

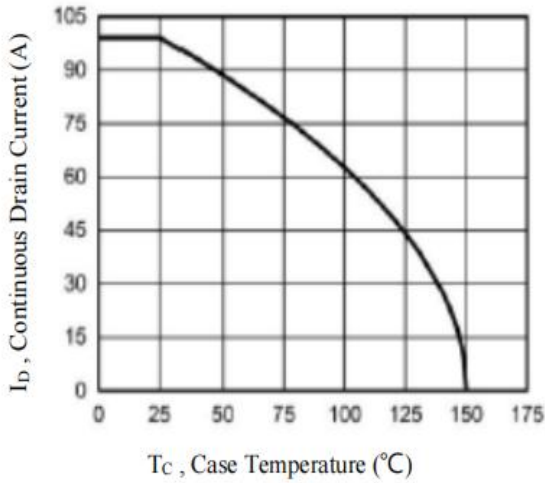


Fig2: Normalized $R_{DS(on)}$ vs. T_J

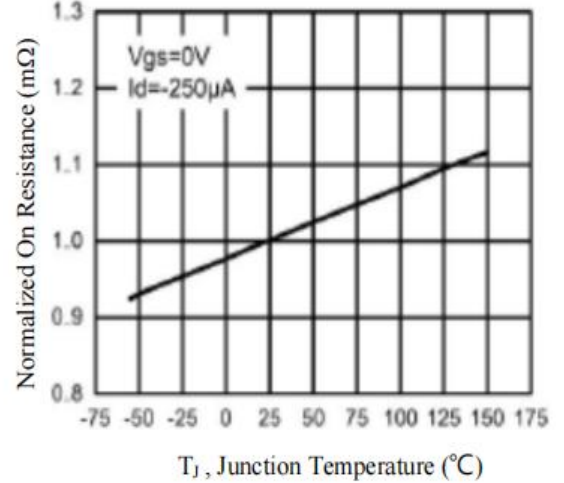


Fig.3 Normalized V_{th} vs. T_J

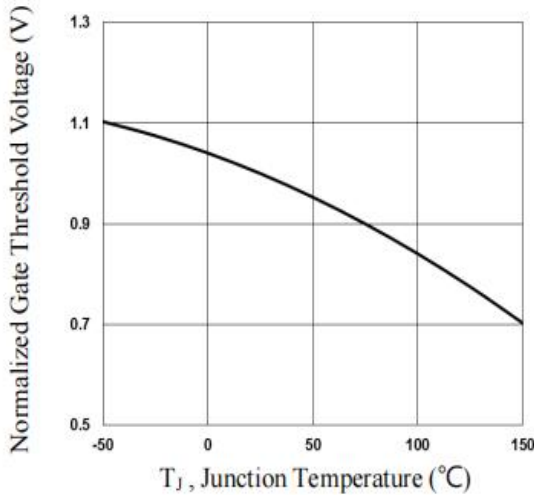


Fig.4 Gate Charge Waveform

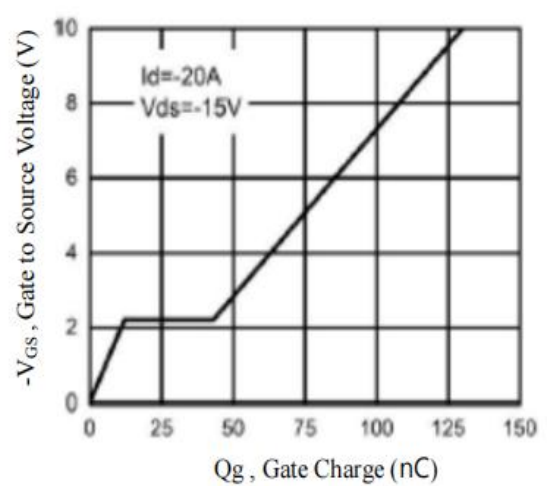


Fig.5 Normalized Transient Impedance

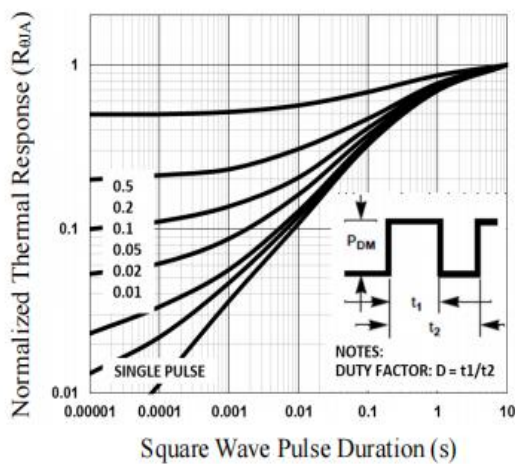
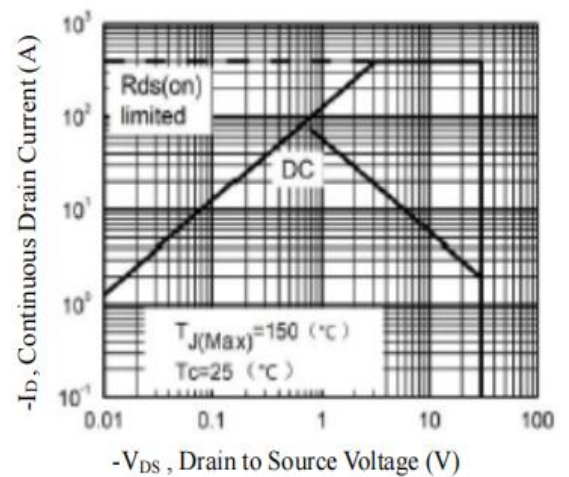


Fig.6 Maximum Safe Operation Area



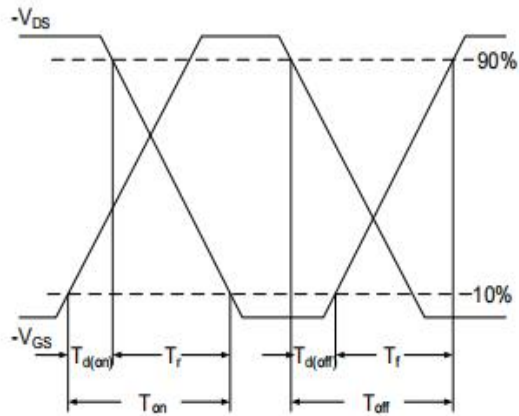


Fig.7 Switching Time Waveform

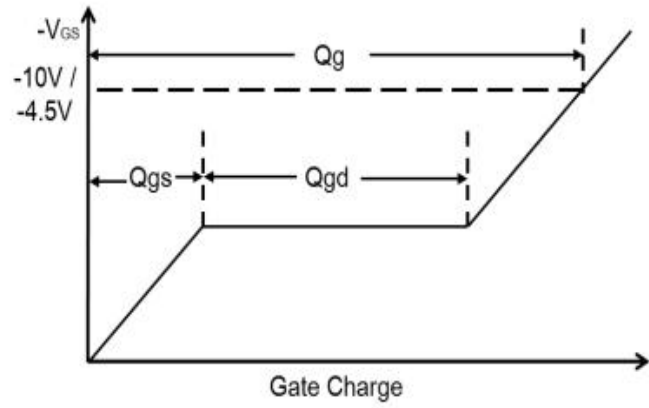
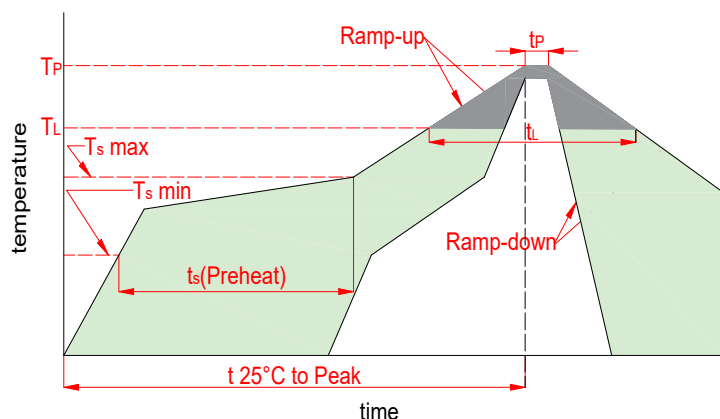


Fig.8 EAS Waveform

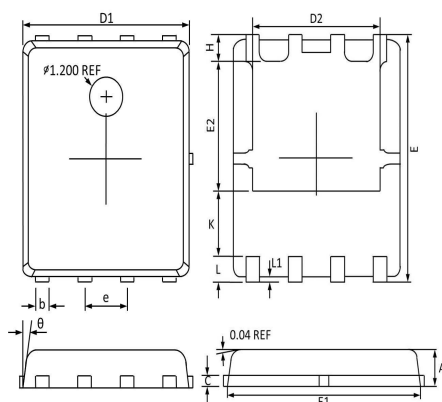


6. Soldering Parameters



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℃

7. Dimensions



Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.031	0.043	0.80	1.10
b	0.013	0.020	0.33	0.51
C	0.008	0.012	0.20	0.30
D1	0.189	0.201	4.80	5.10
D2	0.142	0.161	3.61	4.10
E	0.232	0.244	5.90	6.20
E1	0.224	0.232	5.70	5.90
E2	0.132	0.149	3.35	3.78
e	0.050(BSC)		1.270(BSC)	
H	0.016	0.028	0.41	0.70
K	0.043	0.059	1.10	1.50
L	0.021	0.028	0.54	0.71
L1	0.002	0.008	0.06	0.20
θ	0°	12°	0°	12°

8. Package Information

Package	Marking Code
PDFN5*6	90N03



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