

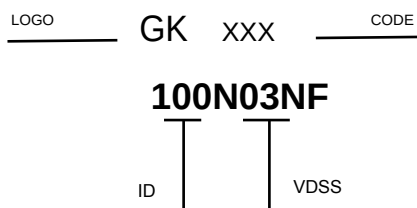
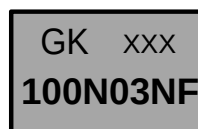
Features

Low Gate Charge
100% UIS Tested, 100% DVDS Tested
High Power and current handing capability
Lead free product is acquired

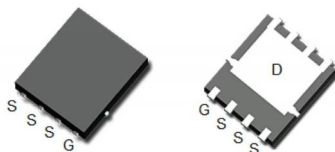
Application

Load switch
PWM applications
Power management

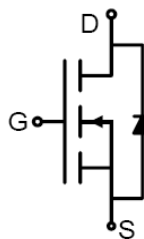
V_{DS} 30 V
 I_D 100 A
 $R_{DS(ON)}$ 3.5 m Ω



PDFN5X6-8L top&bottom view



Equivalent Circuit



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings ($T_C=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Limit	Unit
V_{DS}	Drain-Source Voltage ($V_{GS}=0V$)	30	V
V_{GS}	Gate-Source Voltage ($V_{DS}=0V$)	± 20	V
I_D	Drain Current-Continuous($T_C=25^\circ\text{C}$)	100	A
	Drain Current-Continuous($T_C=100^\circ\text{C}$)	61	A
I_{DM} (pluse)	Drain Current-Continuous@ Current-Pulsed (Note 1)	432	A
P_D	Maximum Power Dissipation($T_C=25^\circ\text{C}$)	66	W
	Maximum Power Dissipation($T_C=100^\circ\text{C}$)	26	W
E_{AS}	Avalanche energy (Note 2)	324	mJ
T_J, T_{STG}	Operating Junction and Storage Temperature Range	-55 To 150	$^\circ\text{C}$

Thermal Characteristic

Symbol	Parameter	Typ	Max	Unit
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case		1.89	$^\circ\text{C/W}$

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

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
On/Off States						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V I _D =250μA	30			V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =30V, V _{GS} =0V T _J =25℃			1	μA
		V _{DS} =30V, V _{GS} =0V T _J =125℃			100	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V, V _{DS} =0V			±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1.0		2.5	V
g _{FS}	Forward Transconductance	V _{DS} =5V, I _D =20A		41		S
R _{DS(ON)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =20A T _J =25℃		3.5	4.5	mΩ
		V _{GS} =4.5V, I _D =20A T _J =25℃		4.8	6	mΩ
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1.0MHz		3764		pF
C _{oss}	Output Capacitance			431		pF
C _{rss}	Reverse Transfer Capacitance			351		pF
R _g	Gate resistance	V _{GS} =0V, V _{DS} =0V, f=1.0MHz		1.6		Ω
Switching Parameters						
t _{d(on)}	Turn-on Delay Time	V _{GS} =10V, V _{DS} =15V, R _L =0.75Ω, R _{GEN} =3Ω		15.6		nS
t _r	Turn-on Rise Time			14.8		nS
t _{d(off)}	Turn-Off Delay Time			82		nS
t _f	Turn-Off Fall Time			8		nS
Q _g	Total Gate Charge	V _{GS} =10V, V _{DS} =15V, I _D =20A		67.6		nC
Q _{gs}	Gate-Source Charge			9.4		nC
Q _{gd}	Gate-Drain Charge			14.6		nC
Source-Drain Diode Characteristics						
I _{SD}	Source-Drain Current (Body Diode)				100	A
V _{SD}	Forward on Voltage (Note 3)	V _{GS} =0V, I _S =20A			1.2	V
t _{rr}	Reverse Recovery Time	I _F =20A, dI/dt=100A/μs		23.5		ns
Q _{rr}	Reverse Recovery Charge	I _F =20A, dI/dt=100A/μs		11.8		nC

Notes 1.Repetitive Rating: Pulse width limited by maximum junction temperature.

Notes 2.EAS condition: $T_J=25^{\circ}\text{C}, V_{DD}=30V, V_G=10V, R_g=25\Omega, L=0.5\text{mH}$.

Notes 3.Repetitive Rating: Pulse width limited by maximum junction temperature.

RATING AND CHARACTERISTIC CURVES

Figure 1. Output Characteristics

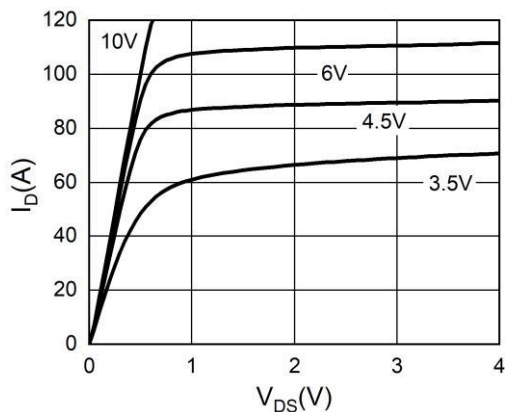


Figure 2. Transfer Characteristics

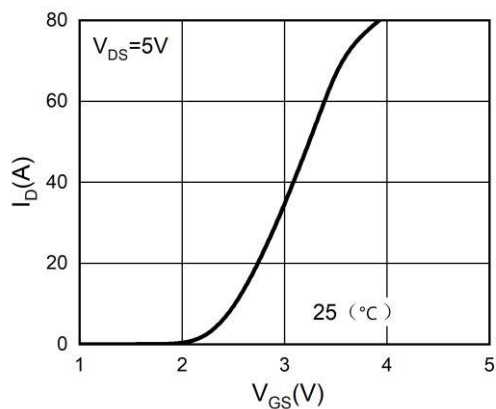


Figure 3. Power Dissipation

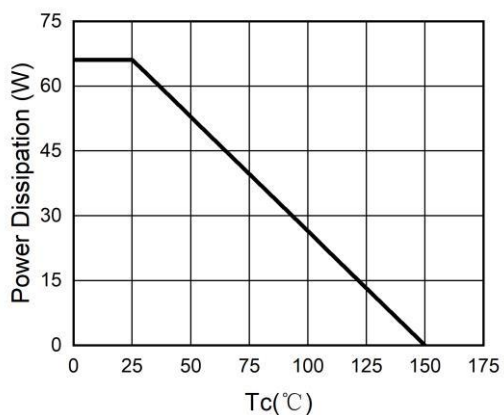


Figure 4. Drain Current

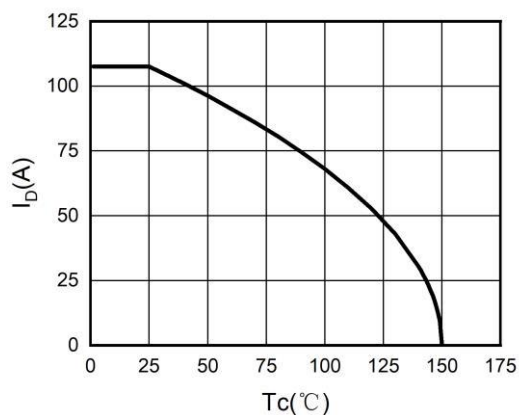


Figure 5. BV_{DSS} vs Junction Temperature

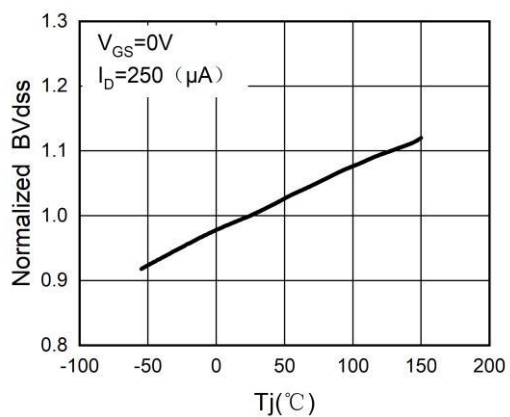
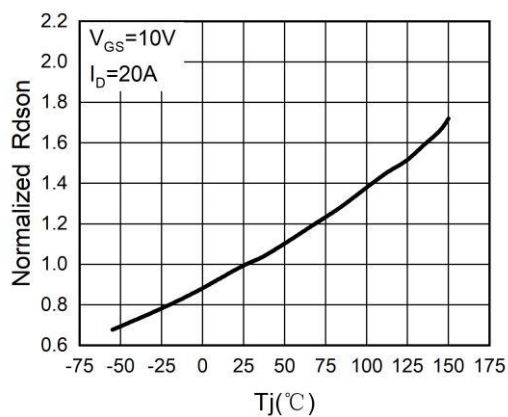


Figure 6. $R_{DS(ON)}$ vs Junction Temperature



RATING AND CHARACTERISTIC CURVES

Figure 7. Gate Charge Waveforms

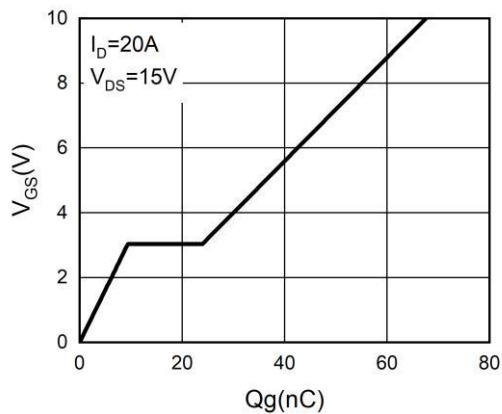


Figure 8. Capacitance

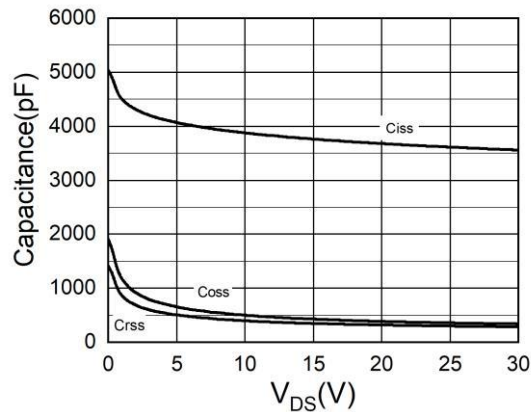


Figure 9. Body-Diode Characteristics

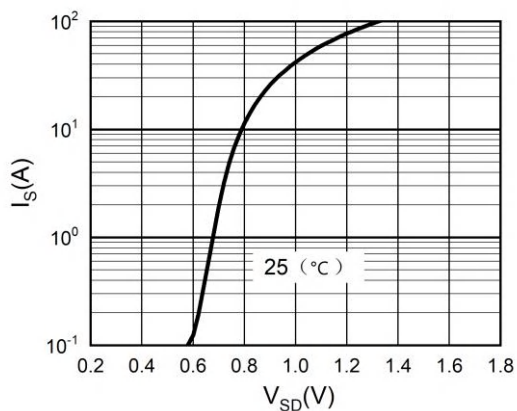
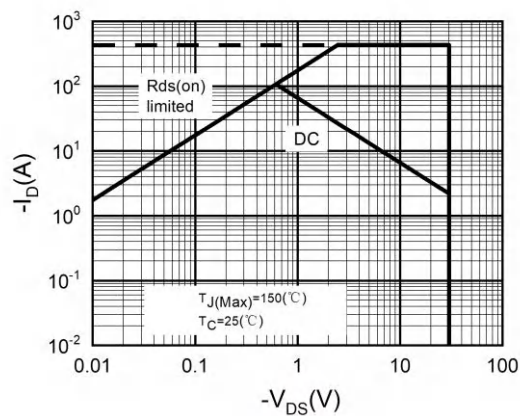
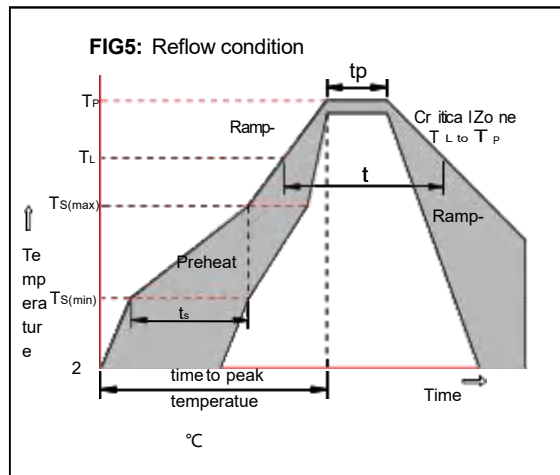


Figure 10. Maximum Safe Operating Area



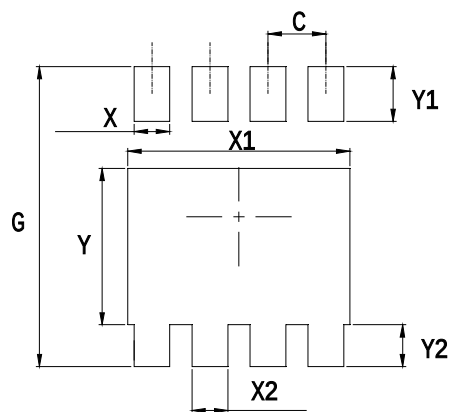
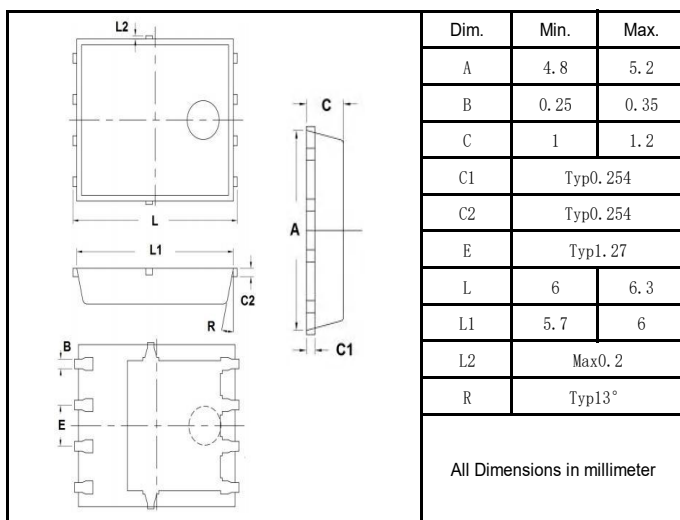
Soldering parameters

Reflow Condition		Pb-Free assembly (see as below)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max ($T_{s(max)}$)	+200°C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3°C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature (T_L) (Liquid us)	+217°C
	-Temperature (t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_P)		30 secs. Max
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260°C



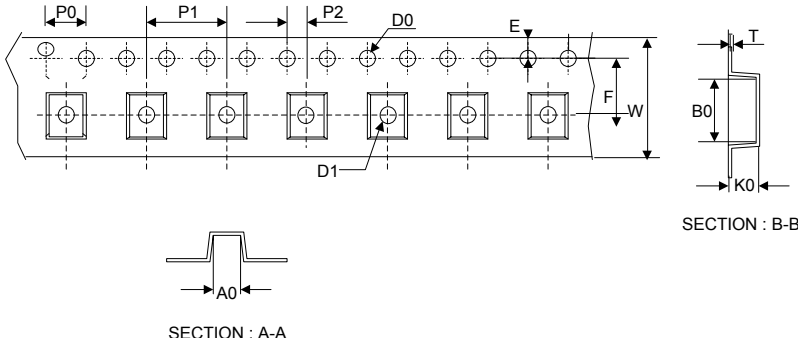
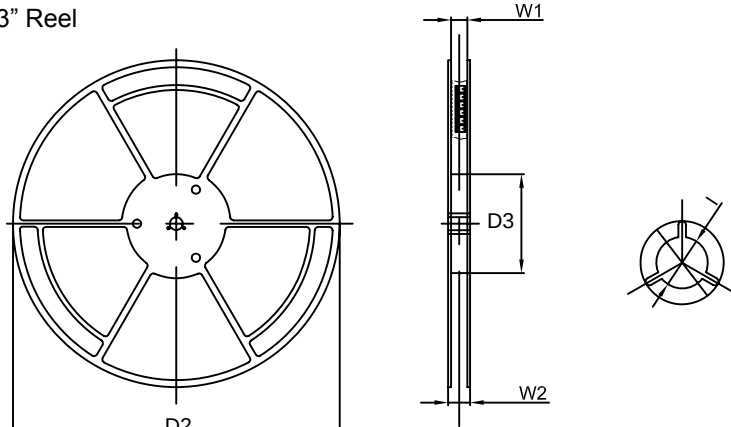
Package Dimensions & Suggested Pad Layout

PDFN5*6



Dimensions	Value (in mm)
C	1.27
G	6.45
X	0.62
X1	4.50
X2	0.62
Y	3.70
Y1	1.05
Y2	0.80

Tape & reel specification

Tape		Symbol	Dimension (mm)
		P0	4.00±0.20
		P1	8.00±0.20
		P2	2.00±0.20
		D0	1.55±0.20
		D1	1.55±0.20
		E	1.75±0.20
		F	5.50±0.20
		W	12.00±0.20
		A0	6.60±0.20
		B0	5.70±0.20
		K0	1.30±0.20
		T	0.20±0.20
		D2	330.0±5.0
13" Reel		D3	100.0±4.0
		W1	12.0±5.0
		W2	14.0±5.0
		I	13.0±2.0
		Quantity: 5000PCS	