V_{DSS}	-30 V
I_D	-120A
$R_{DS(ON)}$	2.8mΩ

Features

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

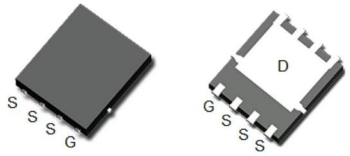
GK xxx
AON6407

LOGO GK xxx CODE

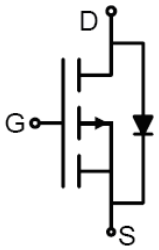
Applications

DC/DC Converter
Ideal for high-frequency switching and synchronous rectification

PDFN5*6-8L top view



Equivalent Circuit



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings (@ T = 25°C unless otherwise specified)

Symbol	Parameter	Limit	Unit
V_{DS}	Drain-Source Voltage (V_{GS}=0V)	-30	V
V_{GS}	Gate-Source Voltage (V_{DS}=0V)	±25	V
I_D	Drain Current-Continuous(T_C=25℃)	-120	A
	Drain Current-Continuous(T_C=100℃)	-76	A
$I_{DM\ (pluse)}$	Drain Current-Continuous@ Current-Pulsed (Note 1)	-480	A
P_D	Maximum Power Dissipation(T_C=25℃)	104	W
	Maximum Power Dissipation(T_C=100℃)	42	W
E_{AS}	Avalanche energy (Note 2)	576	mJ
T_J, T_{STG}	Operating Junction and Storage Temperature Range	-55 To 150	℃

Thermal Characteristic

Symbol	Parameter	Typ	Max	Unit
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case		1.2	℃/W

Electrical Characteristics (T_J=25℃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	-1.7	-2.5	V
g_{FS}	Forward Transconductance	V_{DS}=-5V, I_D=-20A		60		S
$R_{DS(ON)}$	Drain-Source On-State Resistance	V_{GS}=-10V, I_D=-20A		2.8	3.8	mΩ
		V_{GS}=-4.5V, I_D=-20A		4.2	5.5	mΩ
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=-15V, V_{GS}=0V, f=1.0MHz		7000		pF
C_{oss}	Output Capacitance			820		pF
C_{rss}	Reverse Transfer Capacitance			540		pF
Rg	Gate resistance	V_{GS}=0V, V_{DS}=0V, f=1.0MHz		2.2		Ω
Switching Parameters						
$t_{d(on)}$	Turn-on Delay Time	V_{GS}=-10V, V_{DS}=-15V, R_L=0.75Ω, R_{GEN}=3Ω		13		nS
t_r	Turn-on Rise Time			32		nS
$t_{d(off)}$	Turn-Off Delay Time			27		nS
t_f	Turn-Off Fall Time			9		nS
Q_g	Total Gate Charge	V_{GS}=-10V, V_{DS}=-15V, I_D=-20A		130		nC
Q_{gs}	Gate-Source Charge			12		nC
Q_{gd}	Gate-Drain Charge			31		nC
Source-Drain Diode Characteristics						
I_{SD}	Source-Drain Current (Body Diode)				-120	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		30		ns
Q_{rr}	Reverse Recovery Charge	I_F=-20A, di/dt=-100A/μs		40		nC

Notes 1.Repetitive Rating: Pulse width limited by maximum junction temperature.
Notes 2.E_{AS} condition: T_J=25℃,V_{DD}=-30V,V_G=-10V, Rg=25Ω, L=0.5mH.
Notes 3.Repetitive Rating: Pulse width limited by maximum junction temperature.

RATING AND CHARACTERISTIC CURVES

Figure 1. Output Characteristics

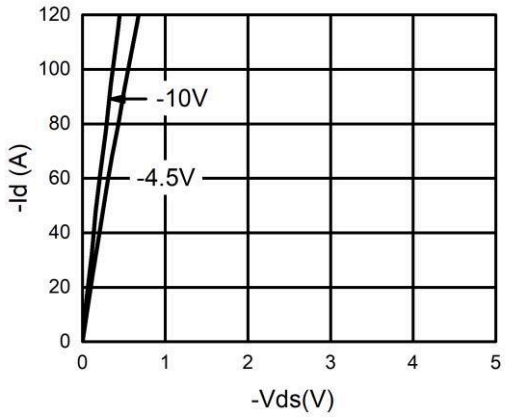


Figure 2. Transfer Characteristics

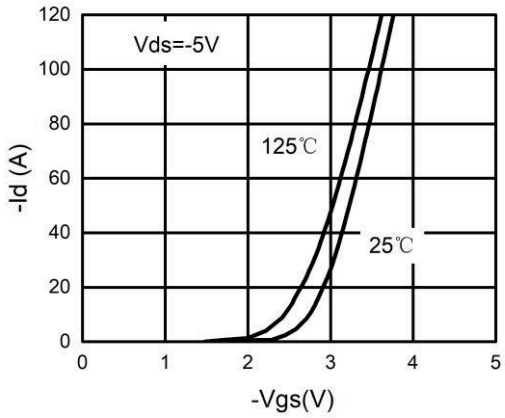


Figure 3. Power Dissipation

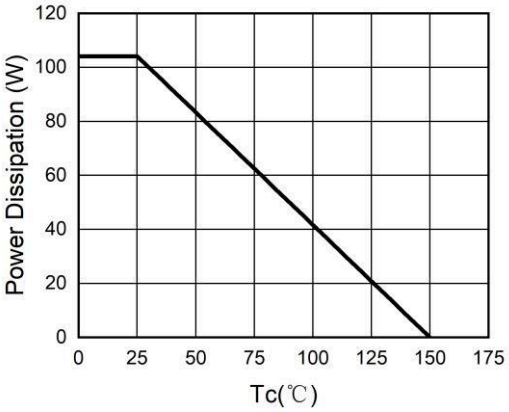


Figure 4. Drain Current

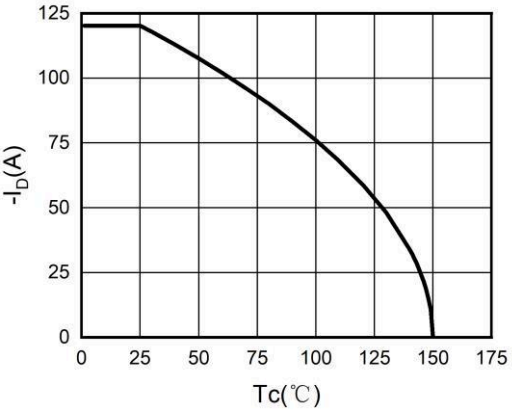


Figure 5. BV_{DSS} vs Junction Temperature

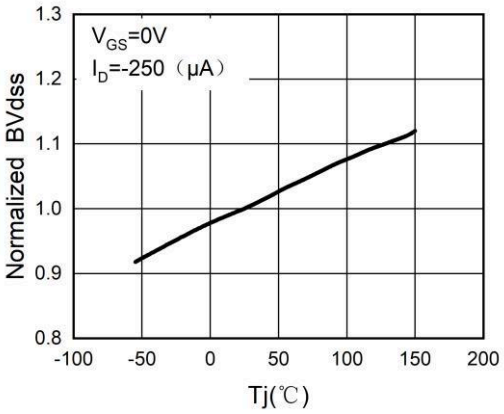
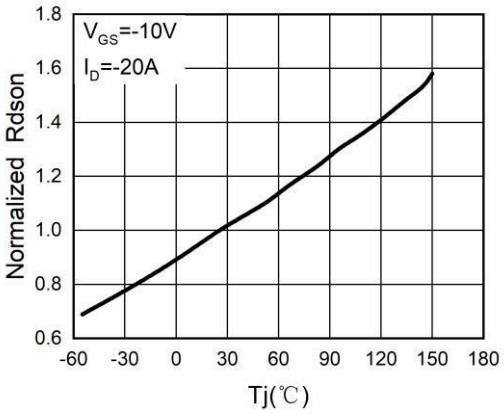


Figure 6. $R_{DS(ON)}$ vs Junction Temperature



RATING AND CHARACTERISTIC CURVES

Figure 7. Gate Charge Waveforms

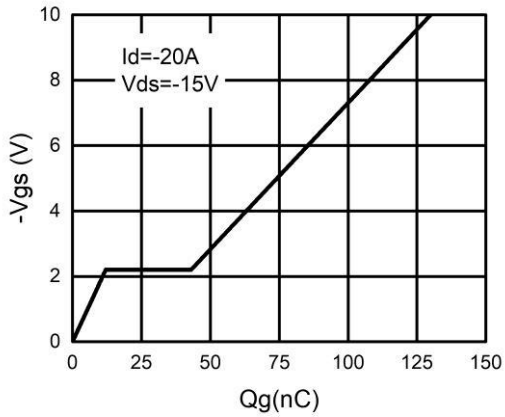


Figure 8. Capacitance

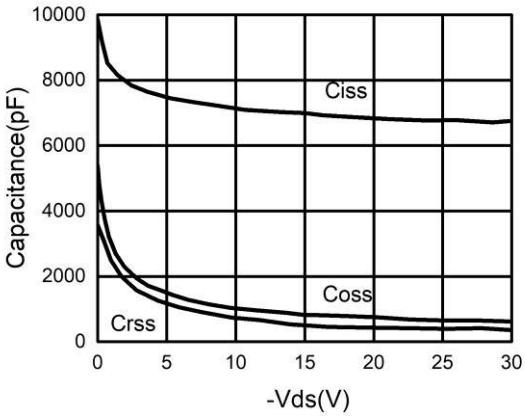


Figure 9. Body-Diode Characteristics

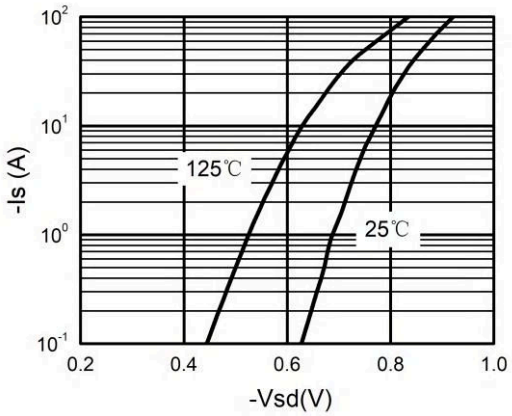
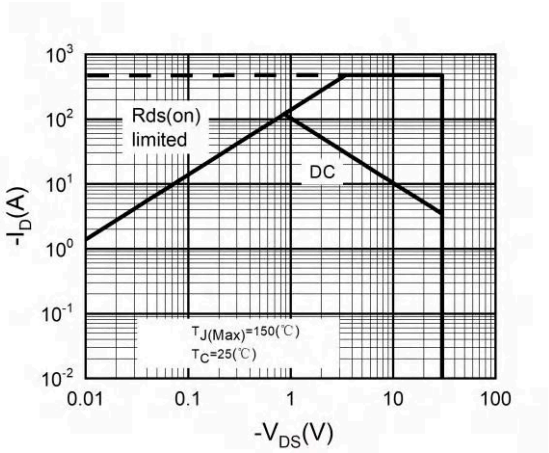


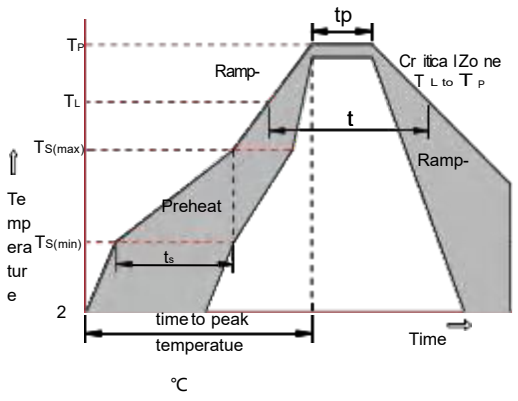
Figure 10. Maximum Safe Operating Area



Soldering parameters

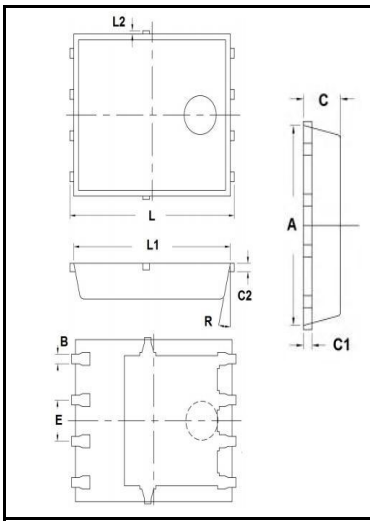
Reflow Condition		Pb-Free assembly (see as bellow)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150℃
	-Temperature Max($T_{s(max)}$)	+200℃
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3℃/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3℃/sec. Max
Reflow	-Temperature(T_L)(Liquid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

FIG5: Reflow condition



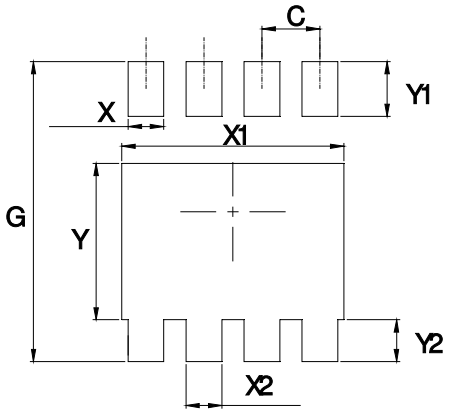
Package Dimensions & Suggested Pad Layout

PDFN5*6



Dim.	Min.	Max.
A	4.8	5.2
B	0.25	0.35
C	1	1.2
C1	Typ0.254	
C2	Typ0.254	
E	Typ1.27	
L	6	6.3
L1	5.7	6
L2	Max0.2	
R	Typ13°	

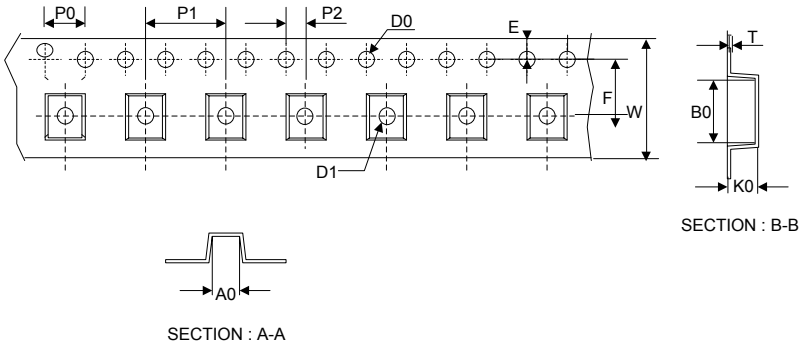
All Dimensions in millimeter



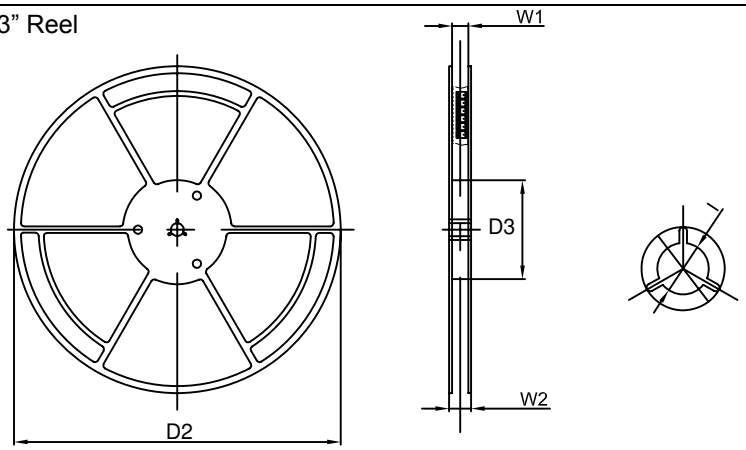
Dimensions	Value (in mm)
C	1.27
G	6.45
X	0.62
X1	4.50
X2	0.62
Y	3.70
Y1	1.05
Y2	0.80

Tape & rell specification

Tape



13” Reel



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
D3	100.0±4.0
W1	12.0±5.0
W2	14.0±5.0
I	13.0±2.0

Quantity: 5000PCS