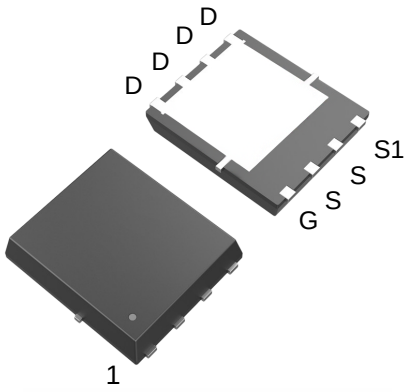
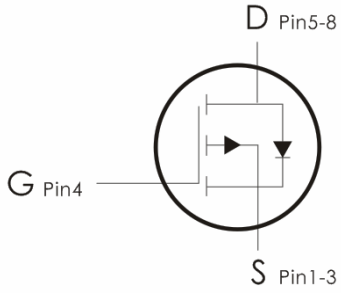
Description：

This P-Channel MOSFET uses advanced trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge.

It can be used in a wide variety of applications.





Features：

1) V_{DS}=-100V,I_D=-15A,$R_{DS(ON)}$<180mΩ @V_{GS}=-10V（Typ：142mΩ）
2) Low gate charge.
3) Green device available.
4) Advanced high cell denity trench technology for ultra low $R_{DS(ON)}$.
5) Excellent package for good heat dissipation.
6) MSL3

Package Marking and Ordering Information：

Part NO.	Marking	Package	Packing
NH180PG-C	H180P-C	DFN5*6-8	5000 pcs/Reel

Absolute Maximum Ratings：（T_C=25℃ unless otherwise noted）

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	-100	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Continuous Drain Current	-15	A
	Continuous Drain Current-T_C=100℃	-11	
I_{DM}	Pulsed Drain Current[1]	-60	
P_D	Total Power Dissipation	58	W
E_{AS}	Single Pulsed Avalanche Energy[2]	68.6	mJ
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	℃

Thermal Characteristics：

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance,Junction to Case	2.1	℃/W

Electrical Characteristics: (T_C=25℃ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Sourtce Breakdown Voltage	V_{GS}=0V,I_D=250μA	-100	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS}=0V, V_{DS}=-100V	---	---	-1	μA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V, V_{DS}=0A	---	---	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate-Source Threshold Voltage	V_{GS}=V_{DS}, I_D=250μA	-1	-1.7	-3	V
$R_{DS(ON)}$	Drain-Source On Resistance [2]	V_{GS}=-10V,I_D=-8A	---	142	180	mΩ
		V_{GS}=-4.5V,I_D=-6A	---	155	200	mΩ
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=-25V, V_{GS}=0V, f=1MHz	---	1675	---	pF
C_{oss}	Output Capacitance		---	78	--	
C_{rss}	Reverse Transfer Capacitance		---	45	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DS}=-50V, I_D=-5A, R_G=2.5Ω,V_{GS}=-10V	---	7.1	---	ns
t_r	Rise Time		---	9	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	51.5	---	ns
t_f	Fall Time		---	33.4	---	ns
Q_g	Total Gate Charge	V_{GS}=-10V, V_{DS}=-80V, I_D=-5A	---	28.5	---	nC
Q_{gs}	Gate-Source Charge		---	4.8	---	nC
Q_{gd}	Gate-Drain “Miller” Charge		---	4.5	---	nC
Drain-Source Diode Characteristics						
V_{SD}	Diode Forward Voltage	V_{GS}=0V, I_{SD}=-1A	---	---	-1.3	V
I_S	Continuous Drain Curren	V_D=V_G=0V	---	---	-15	A
I_{SM}	Pulsed Drain Current		---	---	-60	A
Trr	Reverse Recovery Time	I_F=5A,T_J=25℃ dI/dt=100A/us	---	19.4	---	ns
Qrr	Reverse Recovery Charge		---	18.3	---	nC

g

V1.0

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. EAS condition : TJ=25℃,VDD=-50V,V_G=10V,L=0.5mH
3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

Typical Characteristics: (T_C=25℃ unless otherwise noted)

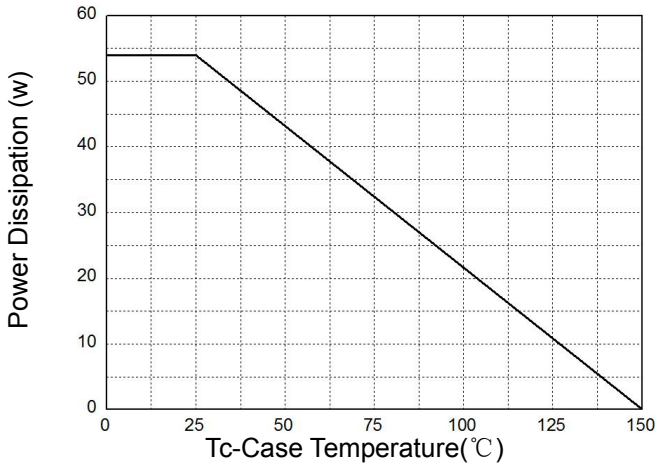


Figure 1: Power Dissipation

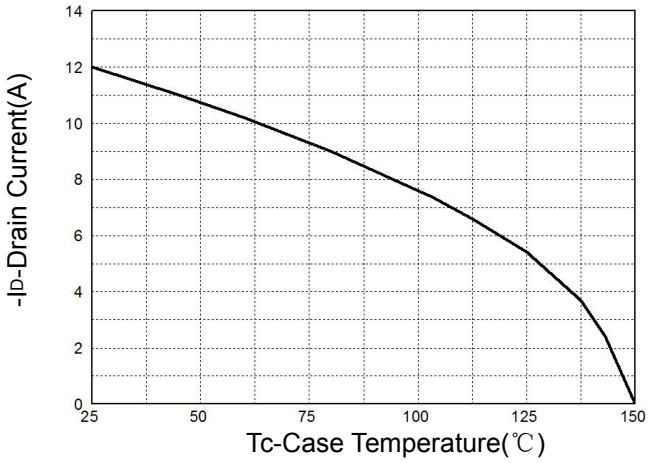


Figure 2: Drain Current

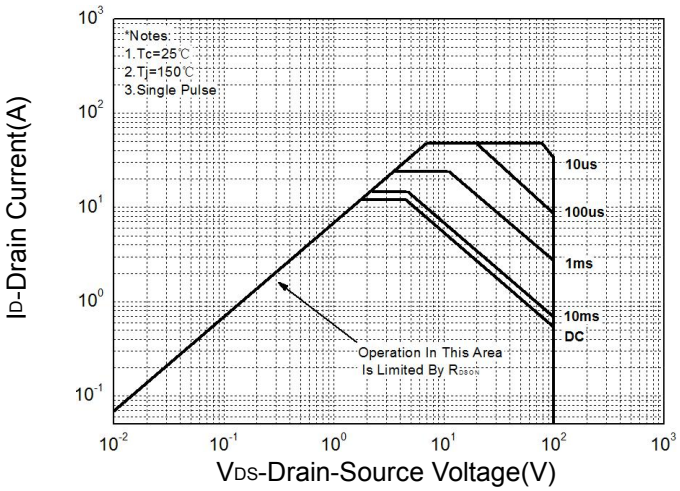


Figure 3: Safe Operation Area

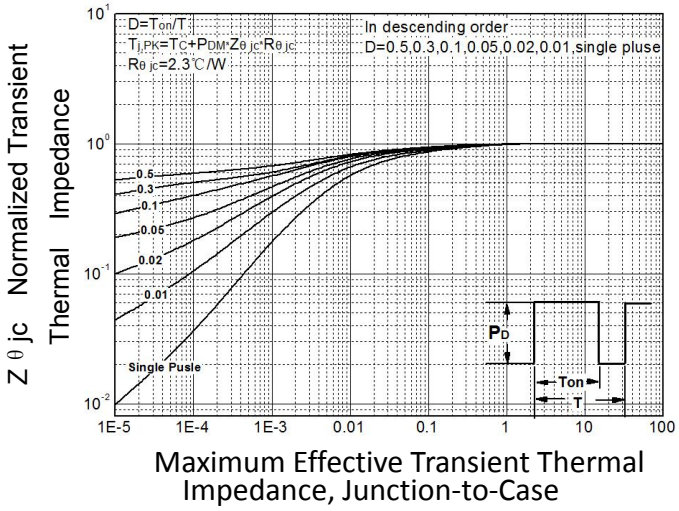


Figure 4: Thermal Transient Impedance

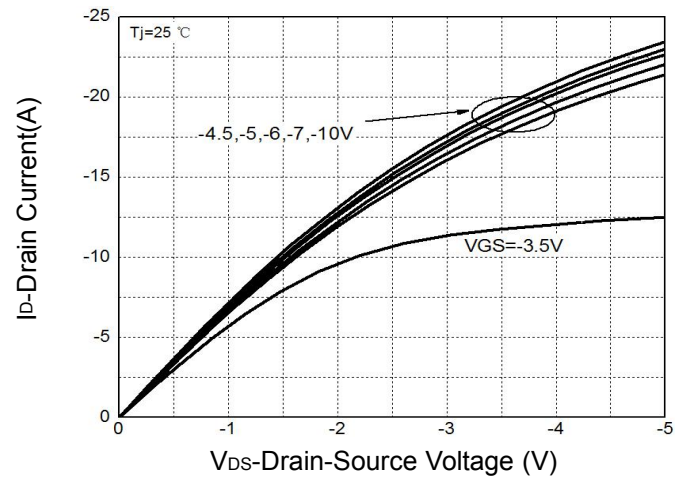


Figure 5: Output Characteristics

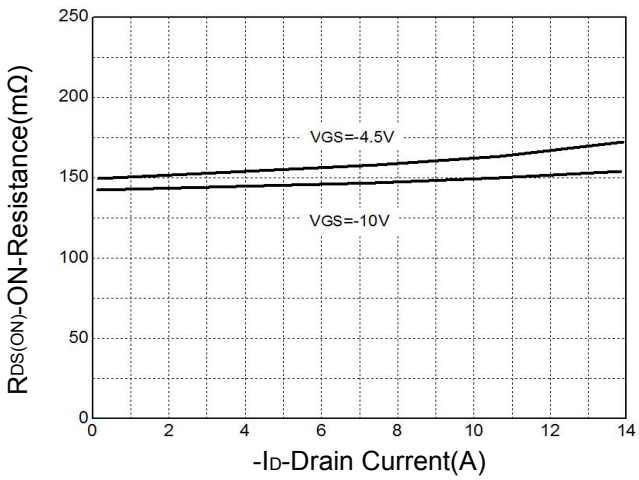


Figure 6: Drain-Source On Resistance

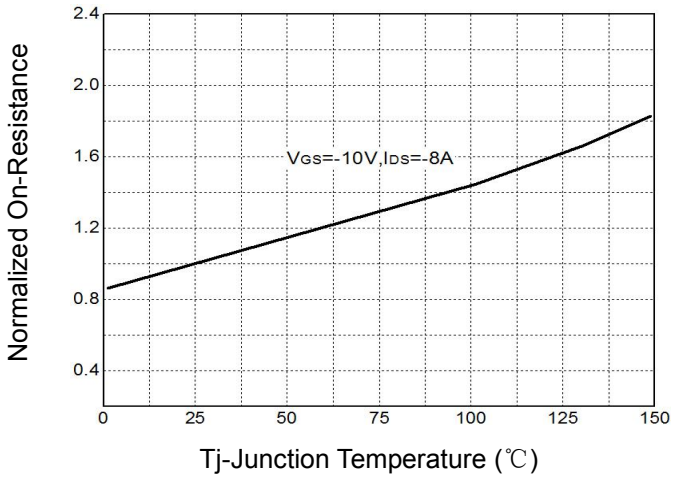


Figure 7: On-Resistance vs. Temperature

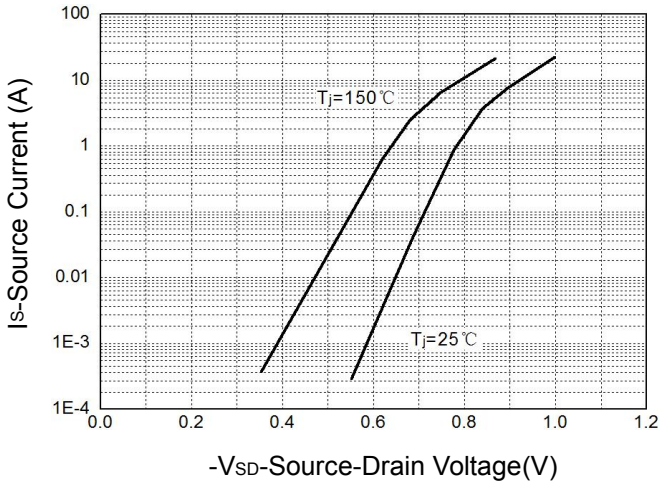


Figure 8: Source-Drain Diode Forward

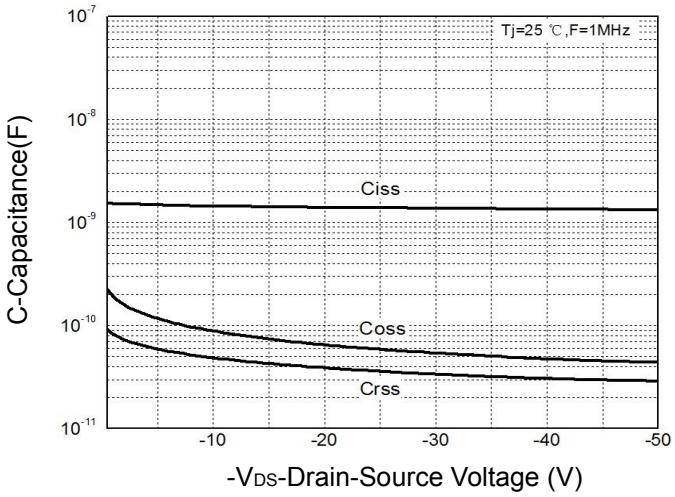


Figure 9: Capacitance Characteristics

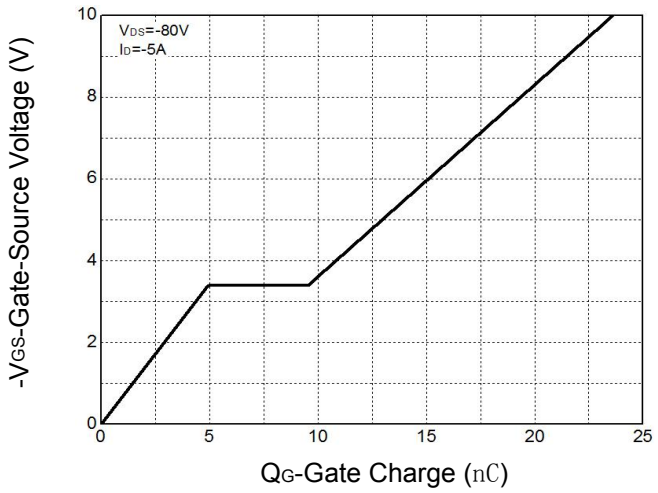
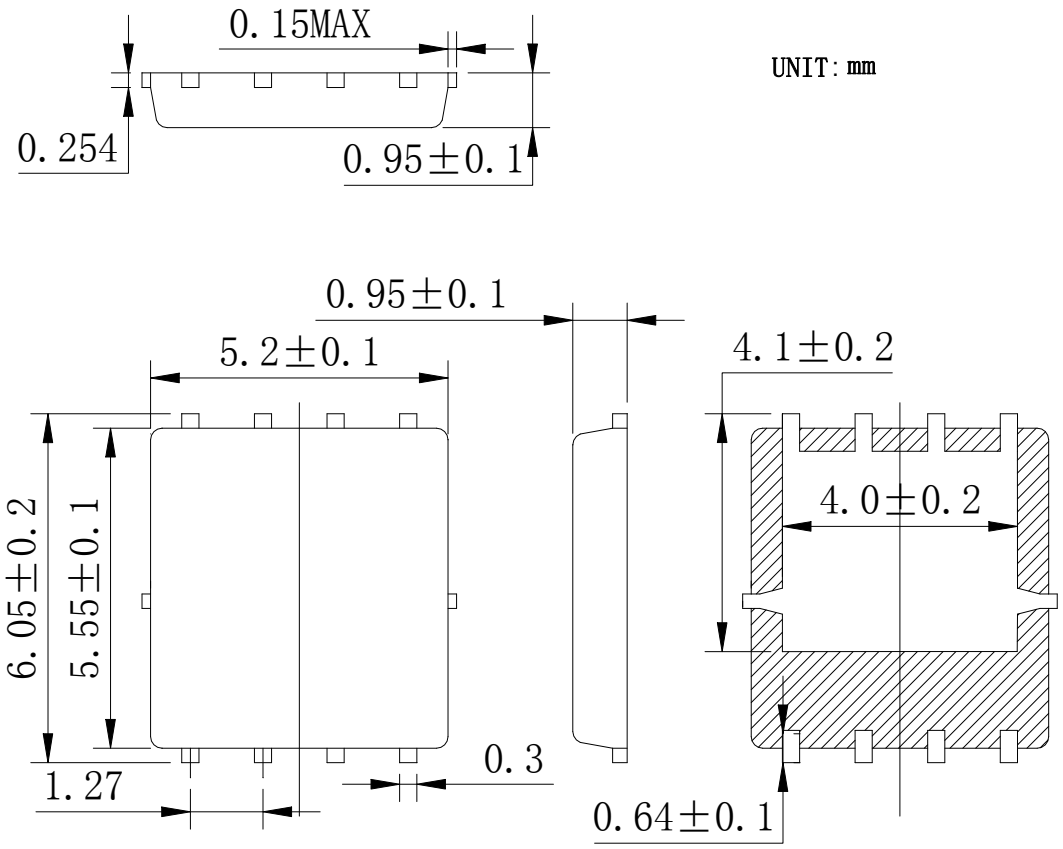


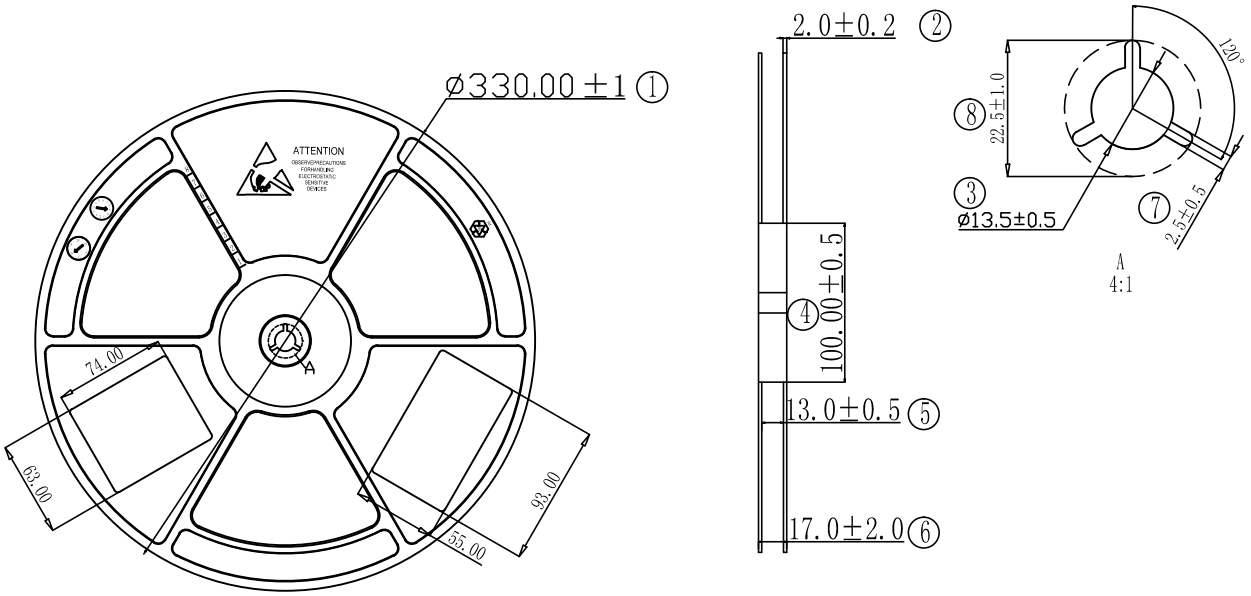
Figure 10: Gate Charge Characteristics

DFN5×6-8 Package Information：

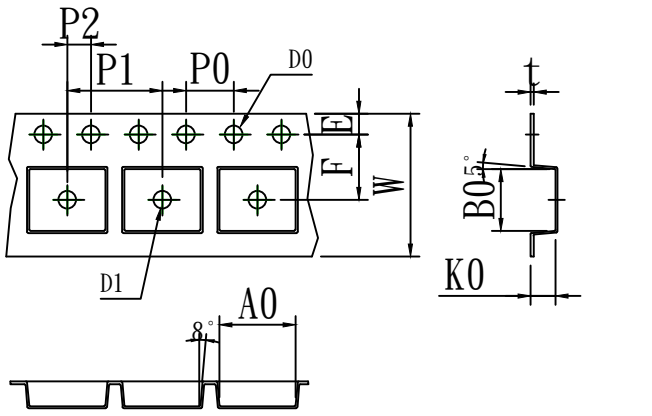


Tape & Reel Information

Dimensions in mm



Symbol	A0	B0	K0	D0	D1	P0	P1	10*P0
Spec	6.15±0.10	5.40±0.10	1.30±0.10	1.55±0.10	1.55±0.10	4.00±0.10	8.00±0.10	40.00±0.10
Symbol	W	E	F	P2	t			
Spec	12.00±0.10	1.75±0.10	5.50±0.10	2.00±0.10	0.20±0.05			



Marking Information：

①. Doingter LOGO

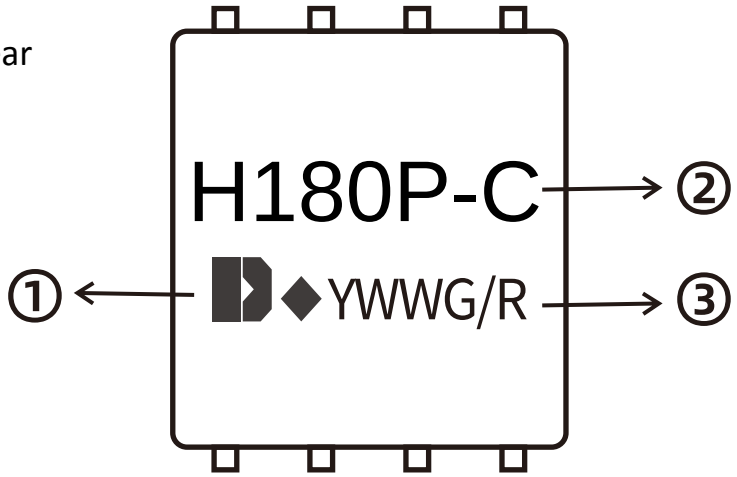
②. Part NO.

③. Date Code(YWWG / R)

Y：Year Code , last digit of the year

WW：Week Code(01-53)

G/R：G(Green) /R(Lead Free)



Previous Version

Version	Date	Subjects (major changes since last revision)
1.0	2024-09-12	Release of final version

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