YHJ-65H225SERIES:

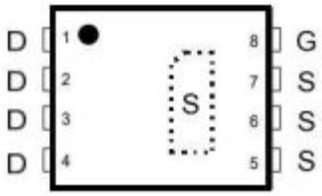
Description

YHJ-65H225 series are integrated GaNFET which possesses not only E-mode GaN's benefits but also compatibility with commonly-seen e-mode GaN, Cascode GaN and Si MOSFET. YHJ-65H225 series provides high breakdown voltage, high current and high operating speed which is suitable for high power applications.

Features

- **Gate drive voltage compatibility (-10V to 15V)**
- **High operating frequency**
- **Zero reverse recovery loss**

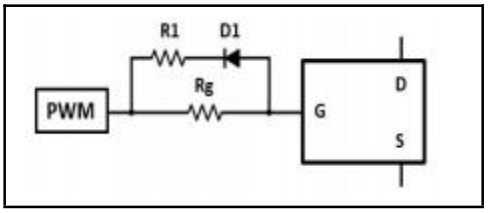
Top View



Applications

- **Switch Mode Power Supplies (SMPS)**
- **AC-DC/ DC- DC Converters**
- **Motor Drives**

Typical Application Circuit



Ordering information：

Ordering Code	PACKGE	Marking (Product Code)	Applications	MPQ
YHJ - 65H225ADI	**DFN8*8mm**	65H225ADI	Industrial	**2500PCS**
YHJ-65H225DDI	**DFN5*6mm**	65H225DDI	Industrial	**3000PCS**
YHJ-65H225AMC	**DFN8*8mm**	65H225AMC	Consumer	**2500PCS**
YHJ-65H225DDC	**DFN5*6mm**	65H225DDC	Consumer	**3000PCS**

Table of Contents

1、Electrical Characteristics

Table 1 Absolutemaximumratings

Symbol	Parameter	Value	Unit
V_{DSS}	Drain-source voltage	650	V
$V_{(TR)DSS}$	Transient drain to source voltage[a]	800	V
V_{GSS}	Gate- source voltage	-10V ~ +15V	V
P_{tot}	Total power dissipation @T_C = 25°C	63	W
I_D	Drain current (continuous) at T_C = 25°C operation	8	A
	Drain current (continuous) at T_C = 100°C operation	5	A
I_{DM}	Pulsed drain current (pulse width: 100us)	13	A
T_J	Operating temperature	-55 to +150	°C
T_S	Storage temperature	-55 to +150	°C
T_{SOLD}	Soldering peak temperature[e]	260	°C

a. In off-state, spike duty cycle D<0.01, spike duration <1us
b. For increased stability at high current operation,see Circuit Implementation on page 3
c. Continuous switching operation
d. ≤300 pulses per second for a total duration ≤20 minutes
e. For 10 sec., 1.6mm from the case

Table 2 ThermalCharacteristics

Symbol	Parameter	Value	Unit
$R_{\theta JA}$	Thermal resistance junction-ambient	42	°C/W
$R_{\theta JC}$	Thermal resistance junction-case	2.1	°C/W

Table 3 Electrical Characteristics(T_{CASE}= 25 °C unless otherwise stated)

Symbol	Parameter	Conditions	Values			Unit
			min.	typ.	max.	
$V_{(BL)DSS}$	Drain-source voltage	V_{GS}=0V	650	-	-	V
$V_{GS(th)}$	Gate threshold voltage	V_{DS}= 10V ,I_D=1mA	1.2	1.6	2.0	V
$R_{DS(on)}$	Static drain-source on-resistance	V_{GS}=10V, I_D=5A, T_J =25 °C	-	215	250-	mΩ
		V_{GS}=10V, I_D=5A, T_J =150 °C	-	475	-	
I_{DSS}	Drain-source leakage current	V_{GS} =0V, V_{DS} =650V, T_J=25°C	-	0.5	12	μA
		V_{GS} =0V, V_{DS} =650V, T_J=150°C	-	100	-	
C_{ISS}	Input capacitance	V_{GS}=0V, V_{DS}=400V, f=1MHz	-	90	-	pF
C_{OSS}	Output capacitance		-	50	-	
C_{RSS}	Reverse transfer capacitance		-	1	-	
Q_G	Gate charge	V_{GS}=0~10V, V_{DS} =400V, I_{DS} =10A	-	1.6	-	nC
Q_{GS}	Gate-source charge		-	0.5	-	
Q_{OSS}	Output charge	V_{GS}=0V, V_{DS}=0~400V	-	14	-	nC
$t_{D(on)}$	Turn-on delay time	V_{DS}=400V, V_{GS} =0 to 12V, I_{DS}=7A ,R_G =25Ω	-	3.5	-	ns
$t_{D(off)}$	Turn-off delay time		-	7	-	
Q_{RR}	Reverse recovery charge	V_{GS} =-10V, V_{DS} =0V	-	0	-	nC

2、Typical Characteristic Curves

Figure 1. On-Region Characteristics (Tj=25 °C

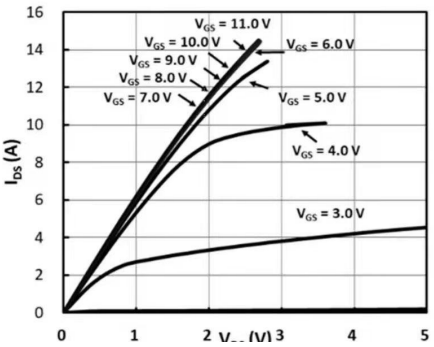


Figure2. On-Region Variation with Temperature

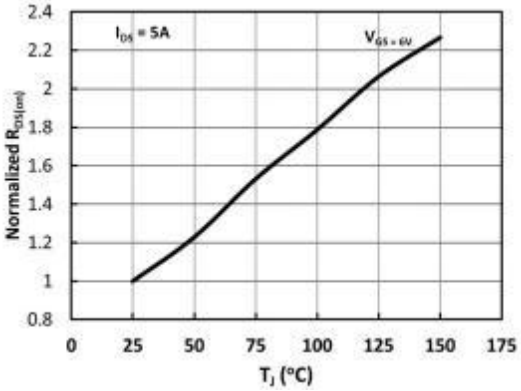


Figure 3. On-Resistance vs Drain Current and Temperature

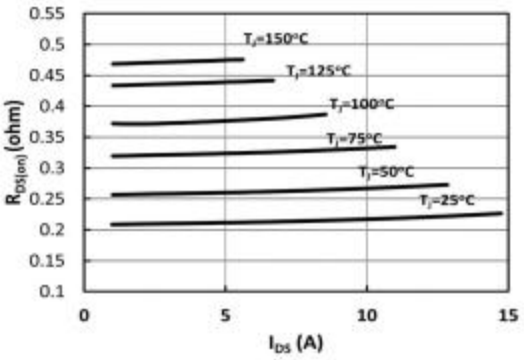


Figure 4. Transfer Characteristics

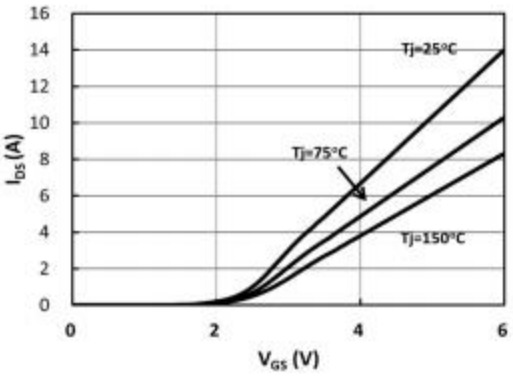


Figure 5. On-Resistance with Gate to Source Voltage

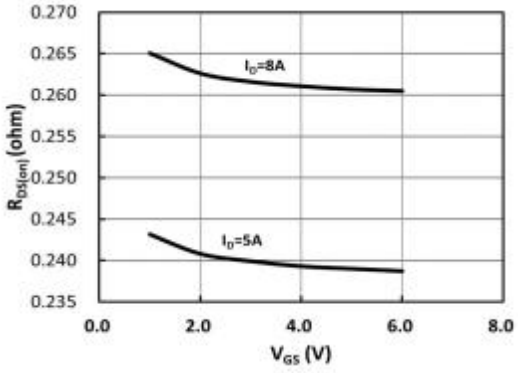


Figure 6. Capacitance Characteristics

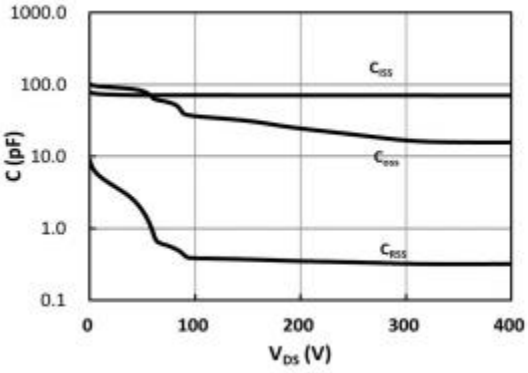


Figure 7. Gate Charge Characteristics

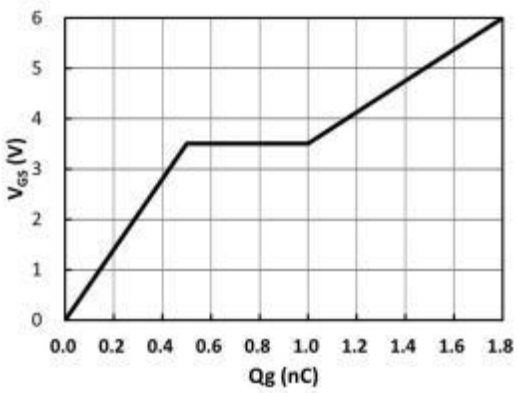


Figure 8. Threshold Voltage with Temperature

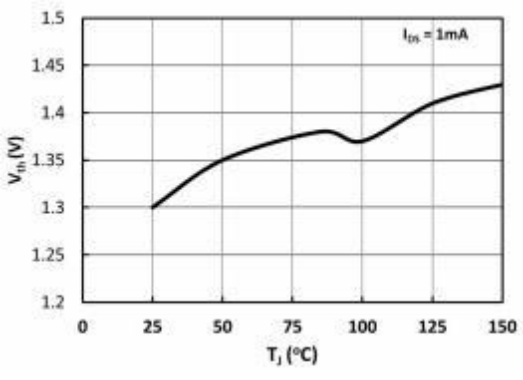


Figure 9. Reverse Conduction Characteristics (Tj=25 °C)

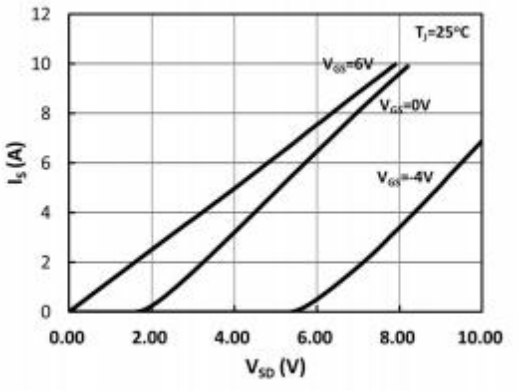
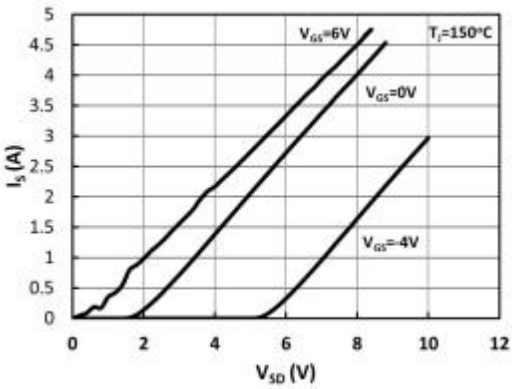
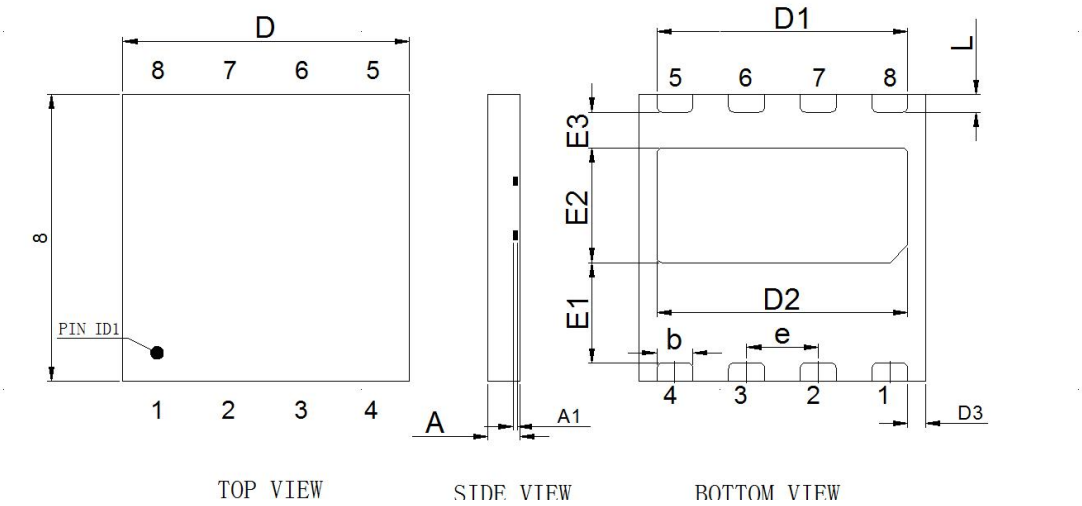


Fig 10. Reverse Conduction Characteristics (Tj=150 °C)

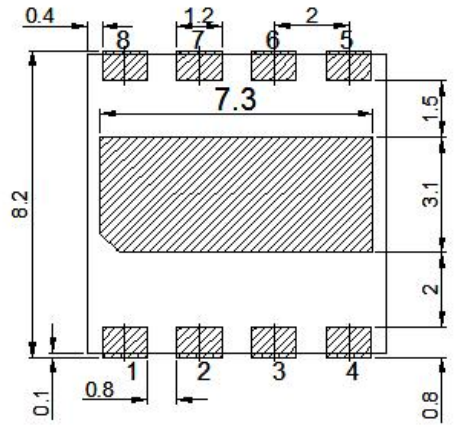


3、Package Outline Dimensions

- **DFN-8*8**



DFN-8X8 Recommended PCB Soldering Footprint

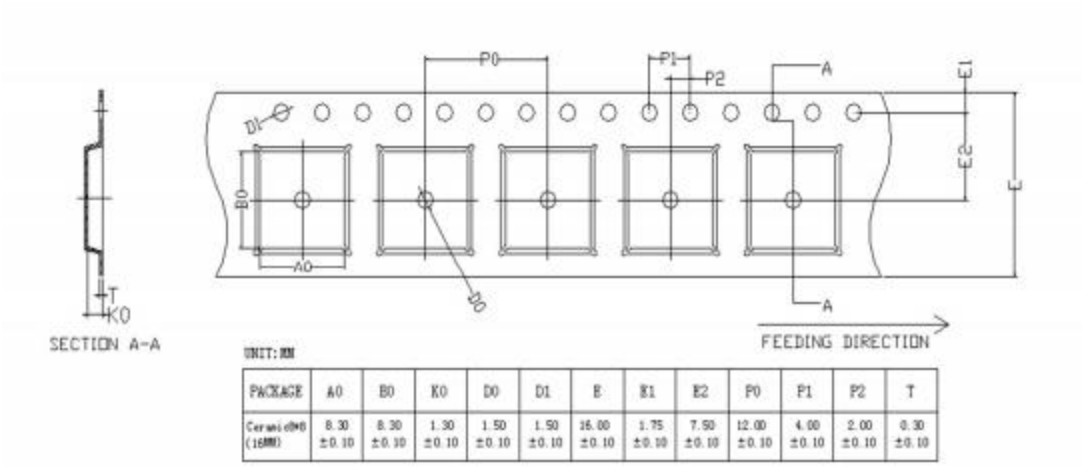


Ref.	Dimensions(in mm)			Ref.	Dimensions(in mm)		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	0.8	0.9	1	D3	0.4	0.5	0.6
A1	0	-	0.2	E1	2.7	2.8	2.9
b	0.9	1	1.1	E2	3.1	3.2	3.3
D	7.9	8	8.1	E3	0.9	1	1.1
E	7.9	8	8.1	e	2BSC		
D1	6.9	7	7.1	L	0.4	0.5	0.6
D2	6.9	7	7.1				

NOTE:
1. ALL DIMENSIONS ARE IN MM.
2. DIMENSIONS ARE NOT INCLUSIVE BURRS AND MOLD FLASH.

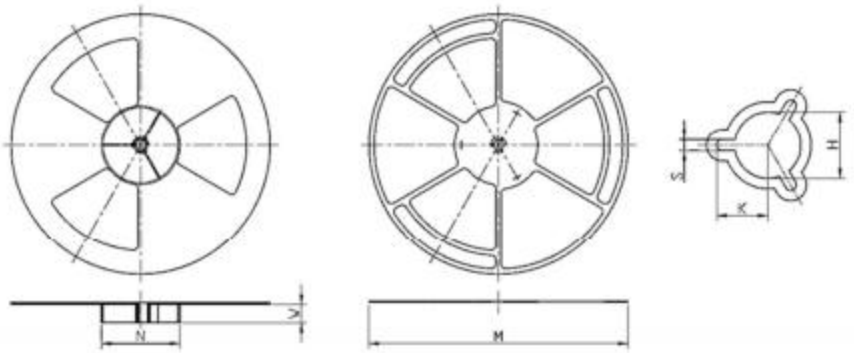
(CeramicDFN 8*8 4L EP1 S/Ceramic DFN 8*8 8L)

EP1 S Carrier Tape



PACKAGE	A0	B0	K0	D0	D1	E	E1	E2	P0	P1	P2	T
Ceramic8*8 (16MM)	8.30 ±0.10	8.30 ±0.10	1.30 ±0.10	1.50 ±0.10	1.50 ±0.10	16.00 ±0.10	1.75 ±0.10	7.50 ±0.10	12.00 ±0.10	4.00 ±0.10	2.00 ±0.10	0.30 ±0.10

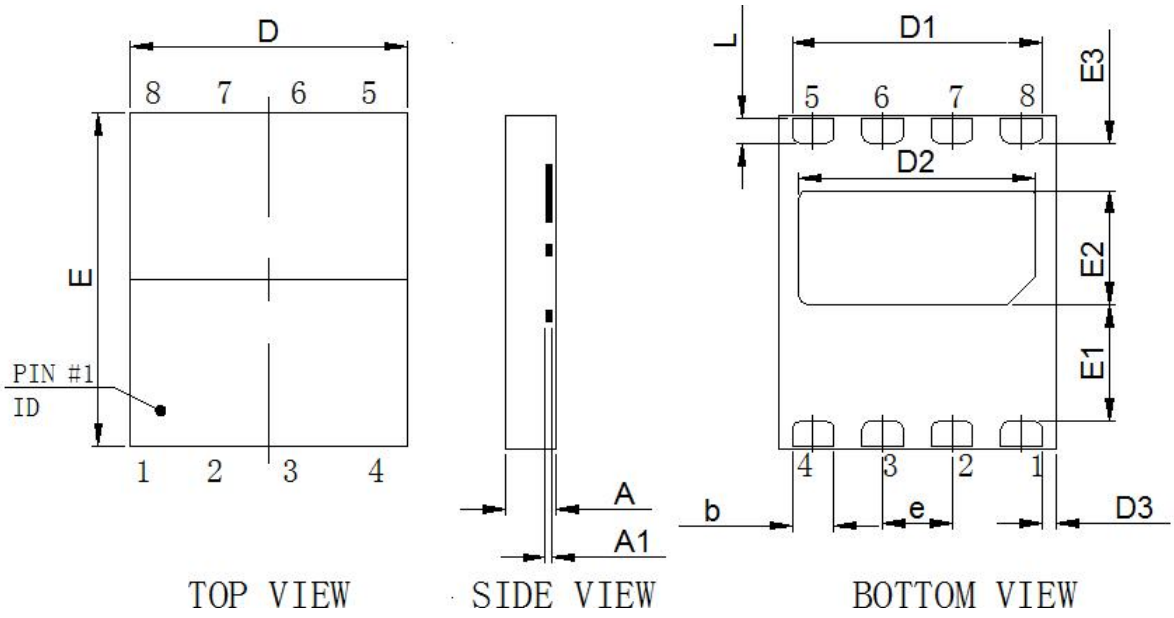
DFN 8*8 4L EP1 S/Ceramic DFN 8*8 8L EP1 S Reel



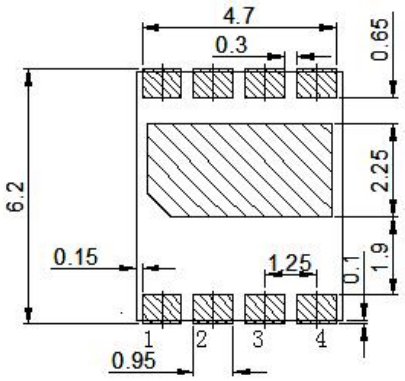
UNIT: MM

TAPE SIZE	REEL SIZE	M	N	W	H	K	S
16 mm	ø330	ø330.00 MAX.	ø100.00 MIN.	16.4 +2.0 -0.0	ø13.0 +0.5 -0.2	10.1 MIN.	1.5 MIN.

- **DFN-5*6**



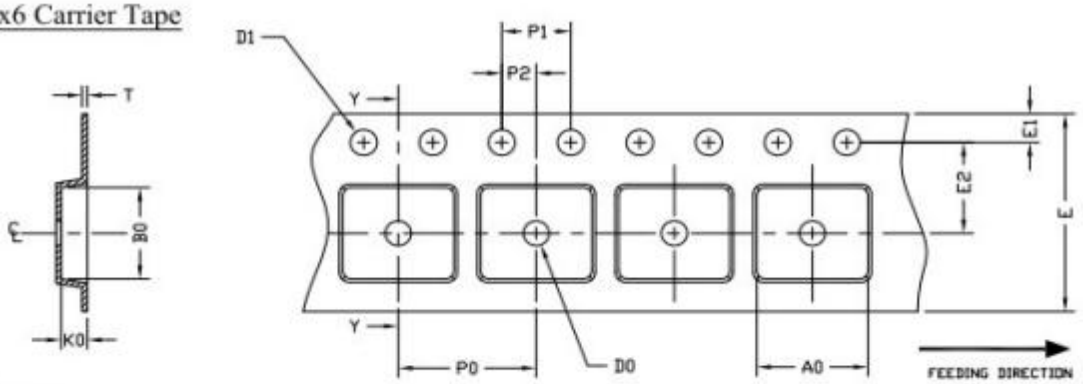
DFN-8X8 Recommended PCB Soldering Footprint



Ref.	Dimensions(in mm)			Ref.	Dimensions(in mm)		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	0.8	0.9	1	D3	0.15	0.25	0.35
A1	0	-	0.3	E1	2	2.1	2.2
b	0.65	0.75	0.85	E2	1.95	2.05	2.15
D	4.9	5	5.1	E3	0.75	0.85	0.95
E	5.9	6	6.1	e	1.25BSC		
D1	4.4	4.5	4.6	L	0.4	0.5	0.6
D2	4.16	4.26	4.36				

NOTE:
1. ALL DIMENSIONS ARE IN MM.
2. DIMENSIONS ARE NOT INCLUSIVE BURRS AND MOLD FLASH.

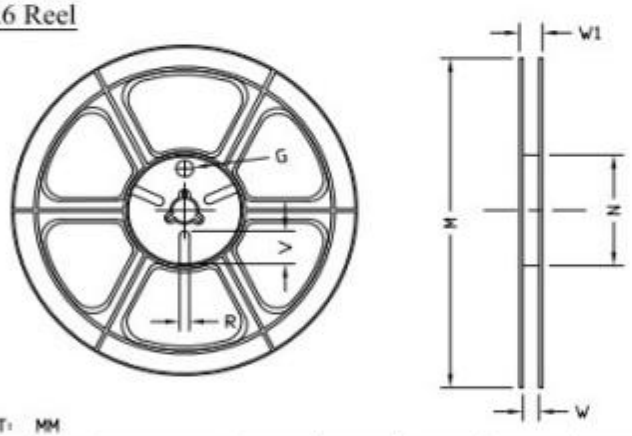
DFN5x6 Carrier Tape



UNIT: MM

PACKAGE	A0	B0	K0	D0	D1	E	E1	E2	P0	P1	P2	T
DFN5x6 (12 mm)	6.30 ±0.10	5.45 ±0.10	1.30 ±0.10	1.50 MIN.	1.55 ±0.05	12.00 ±0.30	1.75 ±0.10	5.50 ±0.10	8.00 ±0.10	4.00 ±0.10	2.00 ±0.10	0.30 ±0.05

DFN5x6 Reel



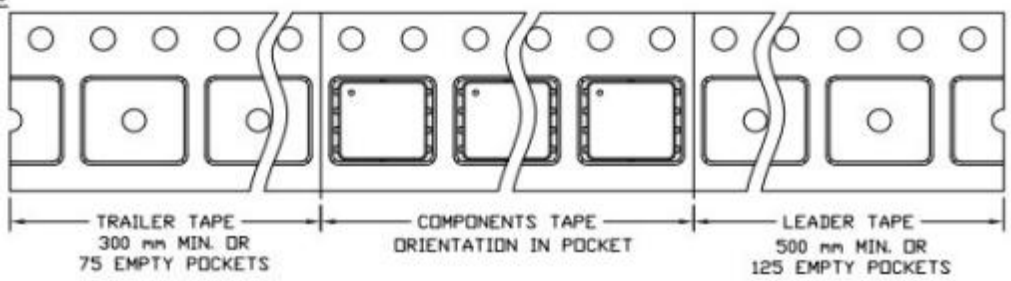
UNIT: MM

TAPE SIZE	REEL SIZE	M	N	W	W1	H	K	S	G	R	V
12 mm	ø330	ø330.00 ±0.50	ø97.00 ±0.10	13.00 ±0.30	17.40 ±1.00	ø13.00 +0.50 −0.20	10.60	2.00 ±0.50	---	---	---

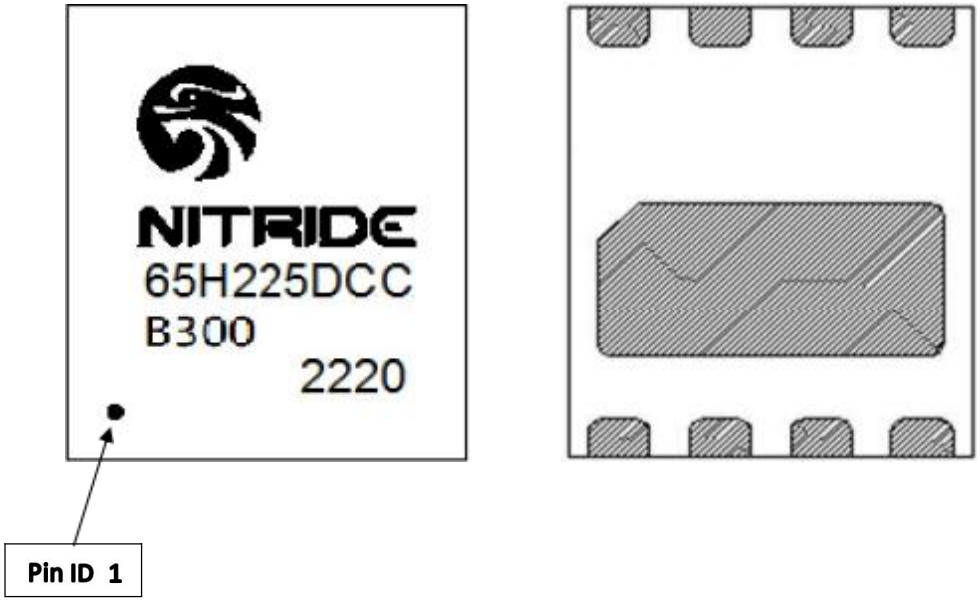
DFN5x6 Tape

Leader / Trailer & Orientation

Unit Per Reel: 3000pcs



4、 Package Marking Description



NOTE:	
LOGO	-Company Logo
NITRIDE	-Company Name
65H225	-Part Number
D	-Package Size
C	-Package Type
C	-Applications
B300	-Material & Lot No.
2220	-**Date code** YYWW

5、Change Log

Version	Date	Description
V1.0	August 26, 2022	Initial version

- *Note:*YHJ semiconductor reserves the right to revise products and/or specifications without notice.