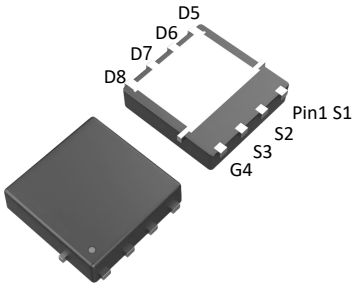
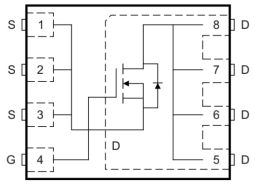
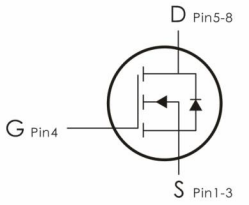
Description：

This N-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}=40V,I_D=50A,$R_{DS(ON)}$<8mΩ @V_{GS}=10V（Typ：5.6mΩ）
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
ZD008NG	D008N	DFN3*3-8	5000 pcs/Reel

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

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	40	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Continuous Drain Current[1]	50	A
	Continuous Drain Current-T_c=100℃[1]	35	
I_{DM}	Pulsed Drain Current[2]	200	
P_D	Power Dissipation	39	W
E_{AS}	Single pulse avalanche energy[3]	77	mJ
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55-+150	℃

Thermal Characteristics：

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance,Junction to Case	3.2	℃/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	40	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS}=0V, V_{DS}=40V	---	---	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	---	2.5	V
$R_{DS(ON)}$	Drain-Source On Resistance[4]	V_{GS}=10V,I_D=20A	---	5.6	8	mΩ
		V_{GS}=4.5V,I_D=10A	---	7.6	12	
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=20V, V_{GS}=0V, f=1MHz	---	2380	---	pF
C_{oss}	Output Capacitance		---	191	--	
C_{rss}	Reverse Transfer Capacitance		---	151	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DS}=20V, I_D=20A, R_G=3Ω,V_{GS}=10V	---	10.5	---	ns
t_r	Rise Time		---	29	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	42	---	ns
t_f	Fall Time		---	7.3	---	ns
Q_g	Total Gate Charge	V_{GS}=10V, V_{DS}=20V, I_D=20A	---	48	---	nC
Q_{gs}	Gate-Source Charge		---	10.5	---	nC
Q_{gd}	Gate-Drain “Miller” Charge		---	10.5	---	nC
Drain-Source Diode Characteristics						
V_{SD}	Diode Forward Voltage	V_{GS}=0V, I_{SD}=15A	---	---	1.2	V
I_S	Continuous Drain Current	V_D=V_G=0V	---	---	41.6	A
I_{SM}	Pulsed Drain Current		---	---	166.6	A
Trr	Reverse Recovery Time	I_F=20A,T_J=25℃	---	11	---	ns
Qrr	Reverse Recovery Charge	dI/dt=100A/us	---	5	---	nC

Notes:

1. Computed continuous current assumes the condition of $T_{j,Max}$ while the actual continuous current depends on the thermal & electro-mechanical application board design
2. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
3. EAS condition : TJ=25℃,VDD=20V,V_G=10V,L=0.5mH
4. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

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

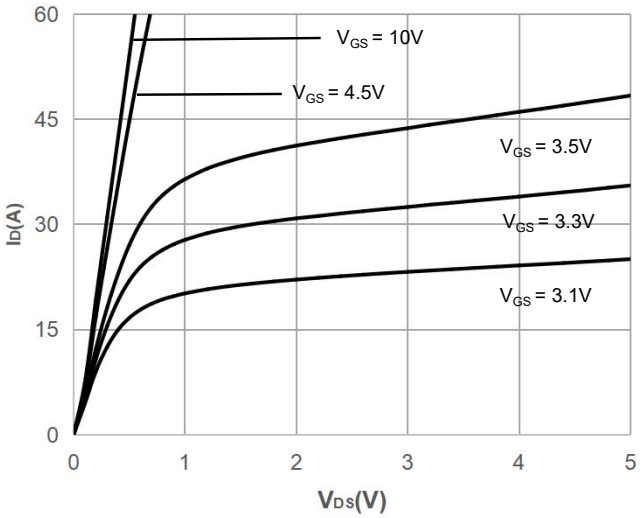


Figure 1: Output Characteristics

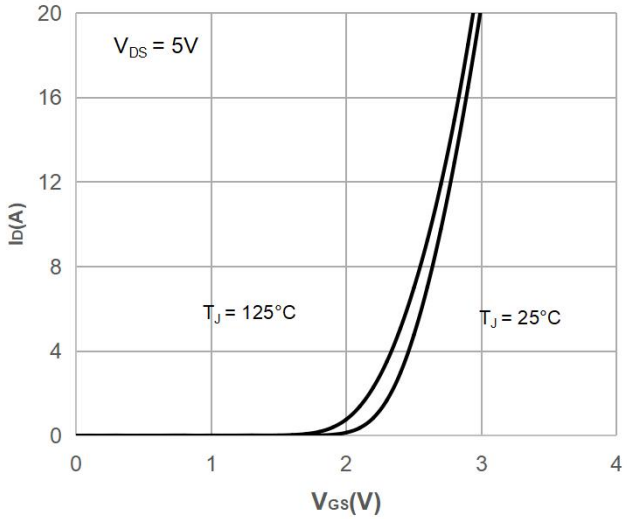


Figure 2: Typical Transfer Characteristics

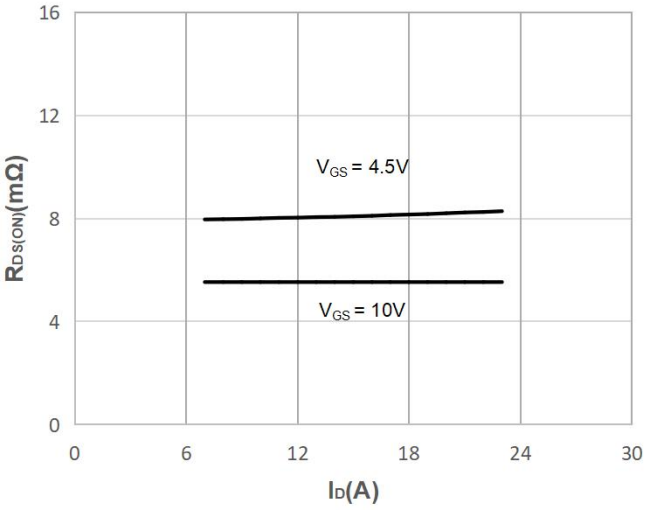


Figure 3: On-resistance vs. Drain Current

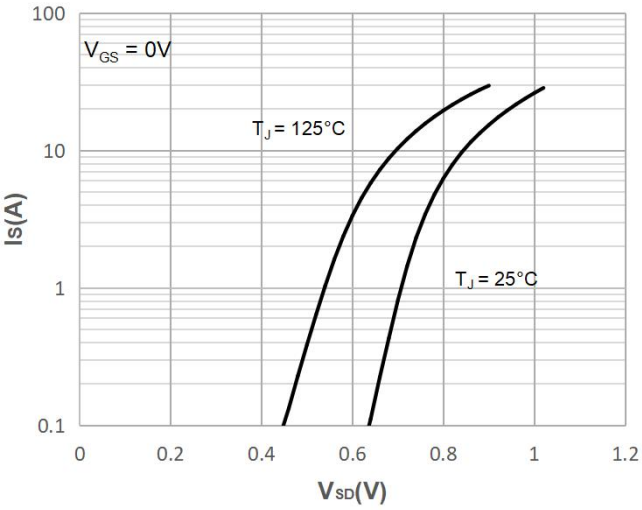


Figure 4: Body Diode Characteristics

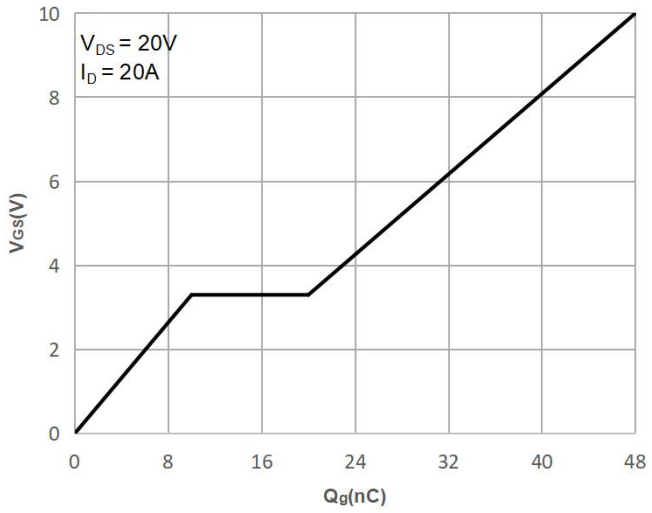


Figure 5: Gate Charge Characteristics

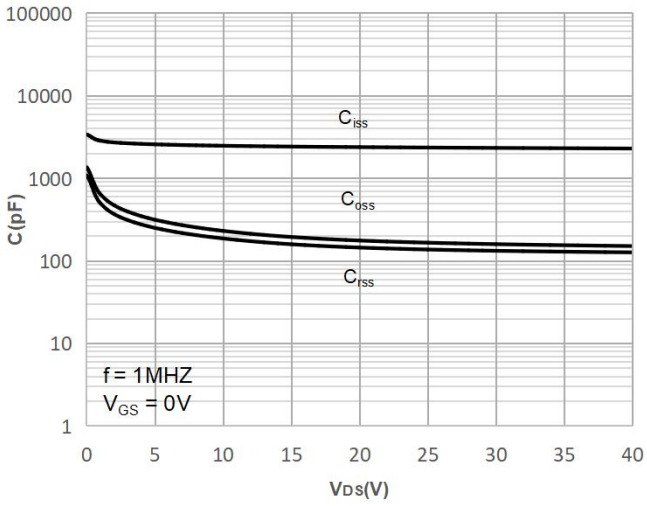


Figure 6: Capacitance Characteristics

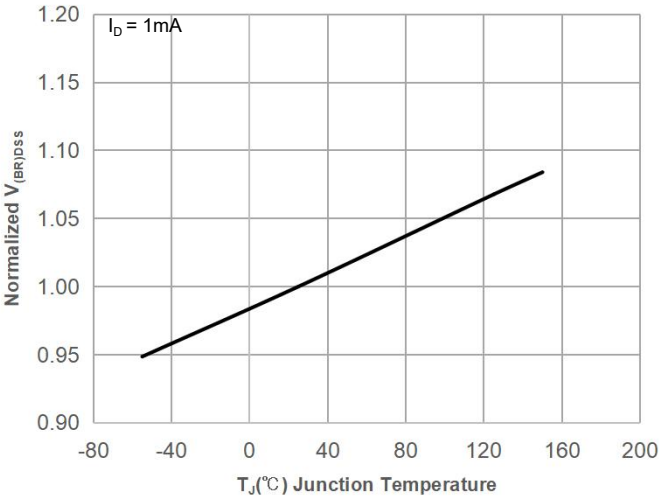


Figure 7: Normalized Breakdown voltage vs. Junction Temperature

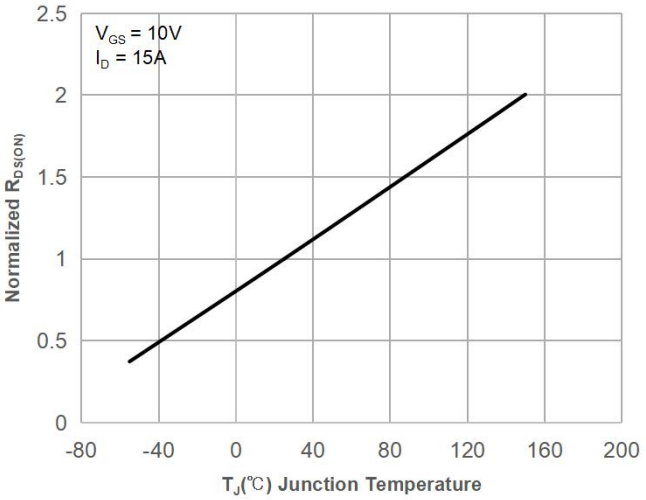


Figure 8: Normalized on Resistance vs. Junction Temperature

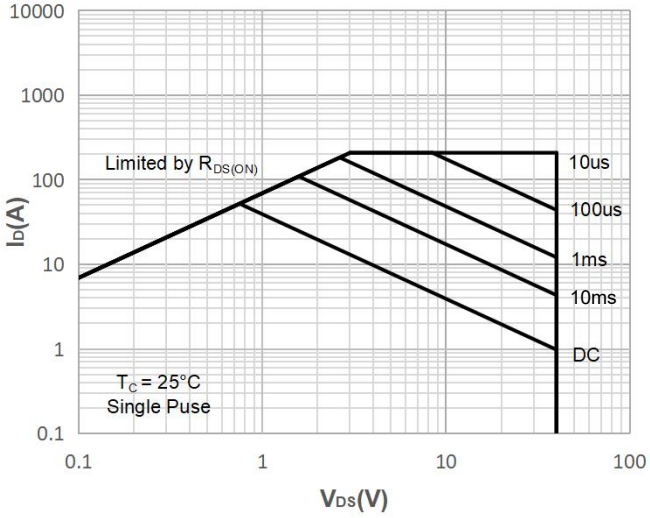


Figure 9: Maximum Safe Operating Area

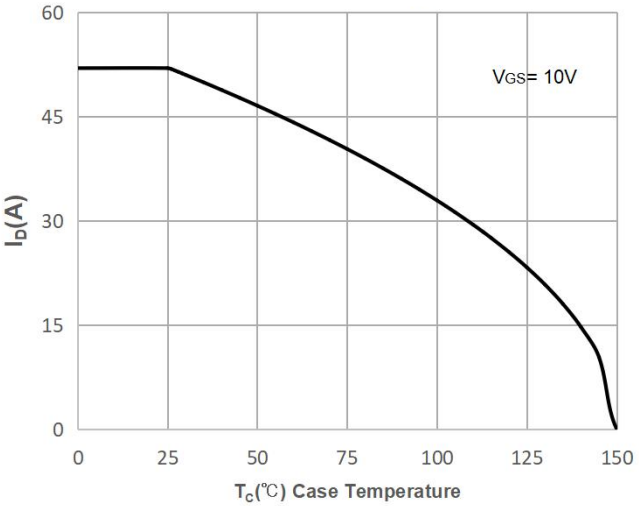


Figure 10: Maximum Continuous Drian Current vs. Case Temperature

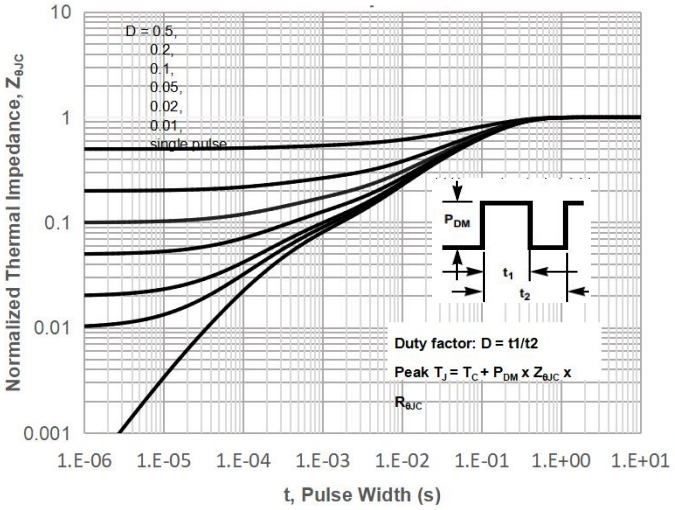


Figure 11: Normalized Maximum Transient Thermal Impedance

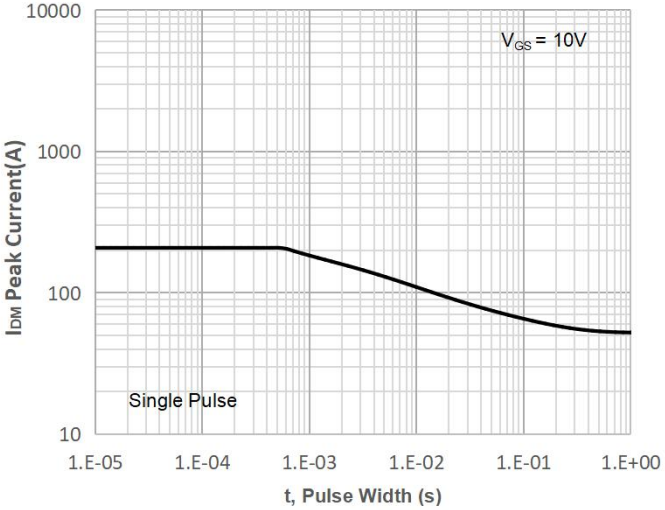
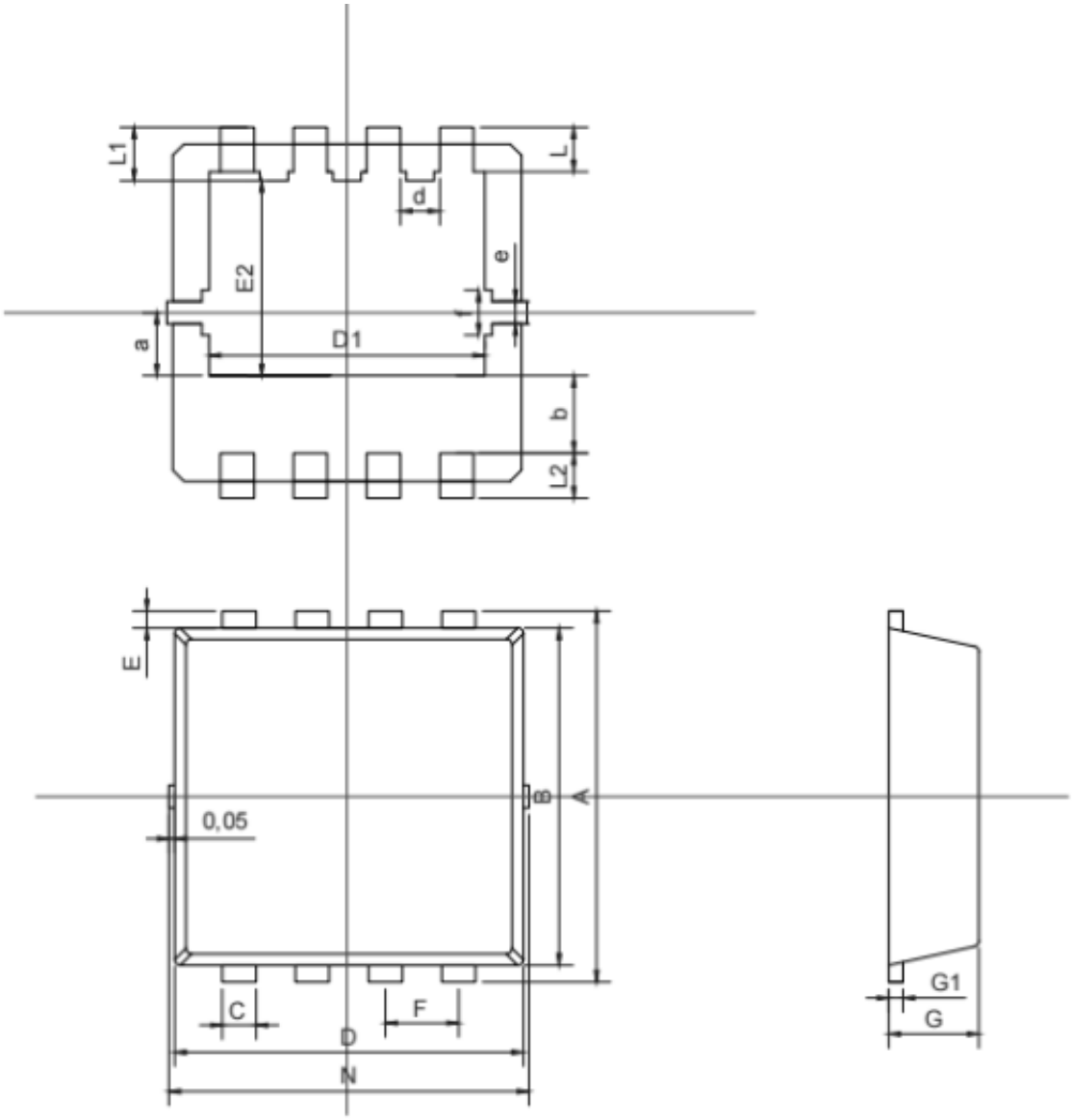


Figure 12: Peak Current Capacity

DFN3X3-8 Package Information：

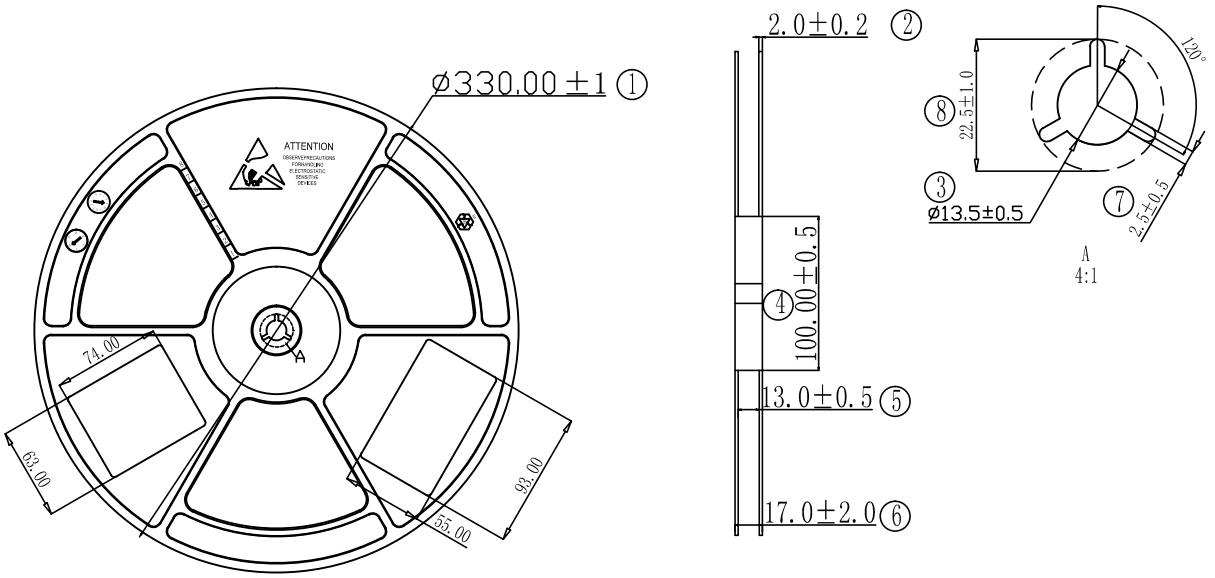


Dimensions

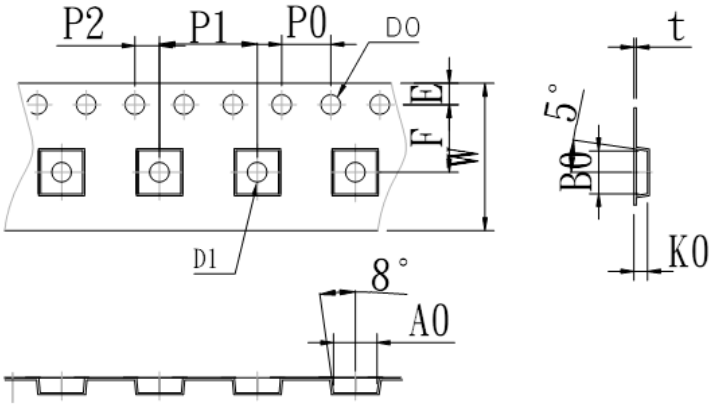
Unit	A	B	C	D	E	F	G	G1	D1	L	N	E2	L1	L2	a	b	d	e	f	n
mm	3.25	2.95	0.25	3.05	0.12	–	0.75	0.135	2.40	0.365	3.15	1.685	0.43	0.35	0.515	0.635	0.35	0.17	0.37	2.08
	(3.35)	(3.05)	(0.30)	(3.10)	(0.15)	(0.65)	(0.80)	(0.15)	(2.45)	(0.41)	(3.20)	(1.73)	(0.48)	(0.40)	(0.56)	(0.68)	(0.40)	(0.20)	(0.40)	(2.58)
	3.45	3.15	0.35	3.15	0.20	–	0.85	0.17	2.50	0.565	3.25	1.785	0.53	0.45	0.615	0.735	0.45	0.25	0.45	3.08

Tape & Reel Information

Dimensions in mm



Symbol	A0	B0	K0	D0	D1	P0	P1	10*P0
Spec	3.55±0.10	3.45±0.10	1.13±0.10	1.55±0.10	1.55±0.10	4.00±0.10	8.00±0.10	40.0±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			



Pulling direction

Marking Information：

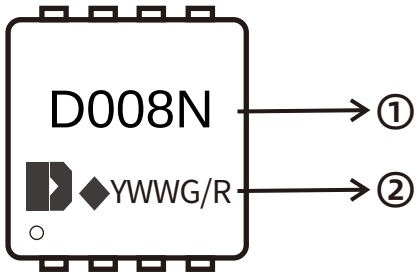
①. Part NO.

②. 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)
1.1	2026-05-10	Release of final version

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