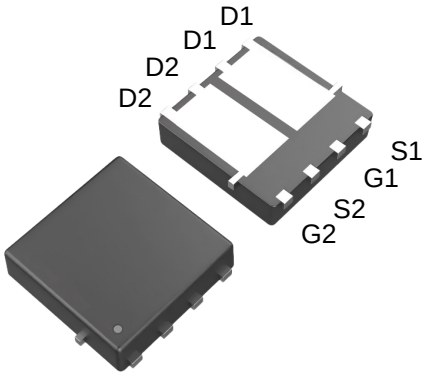
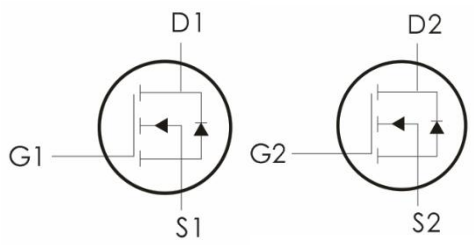
Description：

This Dual 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=12A,$R_{DS(ON)}$<35m Ω @V_{GS}=10V（Typ：28m Ω）
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
ZD035DNG	D035DN	DFN3*3-8D	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]	12	A
	Continuous Drain Current-T_A=100℃[1]	8.4	
I_{DM}	Pulsed Drain Current[2]	48	
P_D	Power Dissipation	14	W
E_{AS}	Single pulse avalanche energy[3]	5.5	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	8.9	℃/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	1.9	2.5	V
$R_{DS(ON)}$	Drain-Source On Resistance[4]	V_{GS}=10V,I_D=10A	---	28	35	mΩ
		V_{GS}=4.5V,I_D=5A	---	36	47	
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=20V, V_{GS}=0V, f=1MHz	---	530	---	pF
C_{oss}	Output Capacitance		---	44	--	
C_{rss}	Reverse Transfer Capacitance		---	34	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DS}=20V, I_D=3A, R_G=3Ω,V_{GS}=10V	---	4.6	---	ns
t_r	Rise Time		---	2	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	47	---	ns
t_f	Fall Time		---	372	---	ns
Q_g	Total Gate Charge	V_{GS}=10V, V_{DS}=20V, I_D=3A	---	11	---	nC
Q_{gs}	Gate-Source Charge		---	2.2	---	nC
Q_{gd}	Gate-Drain “Miller” Charge		---	2	---	nC
Drain-Source Diode Characteristics						
V_{SD}	Diode Forward Voltage	V_{GS}=0V, I_{SD}=30A	---	---	1.2	V
I_S	Continuous Drain Curren	V_D=V_G=0V	---	---	12	A
I_{SM}	Pulsed Drain Current		---	---	48	A
Trr	Reverse Recovery Time	I_F=3A,T_J=25℃ dI/dt=100A/us	---	8.5	---	ns
Qrr	Reverse Recovery Charge		---	3.8	---	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=0.1mH
4. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

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

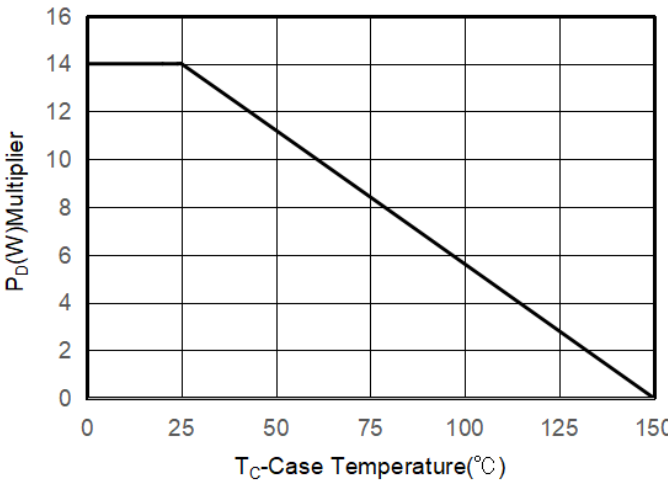


Figure 1: Power De-rating

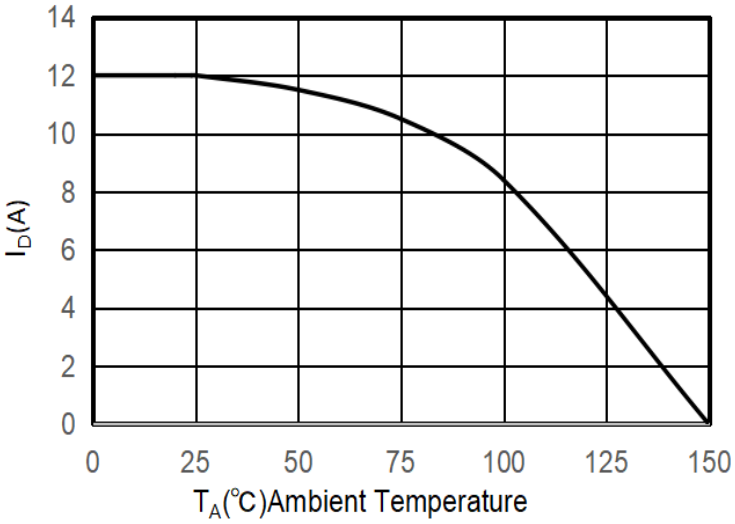


Figure 2: Current De-rating

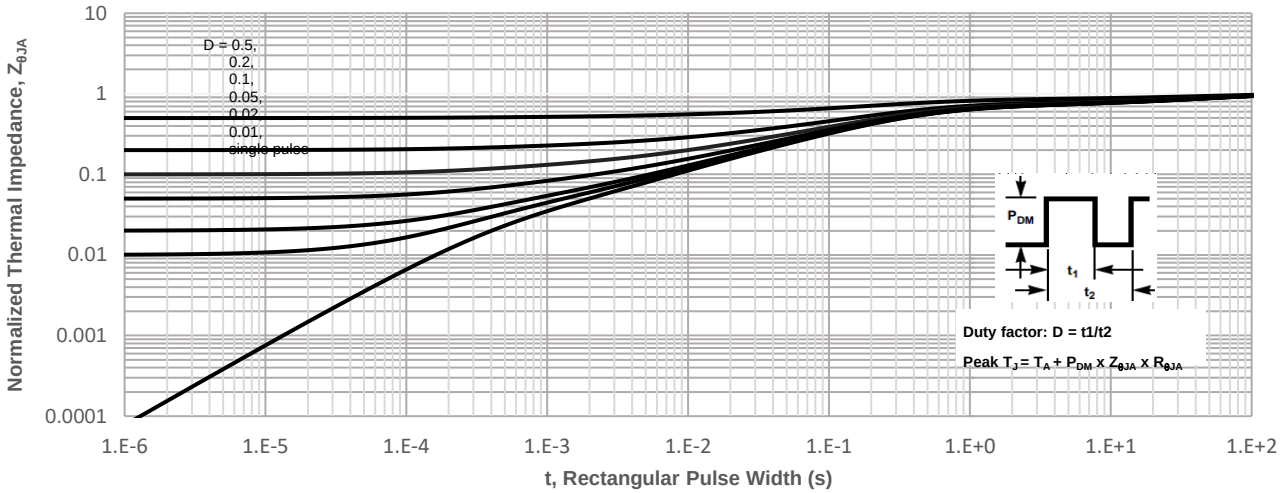


Figure 3: Normalized Maximum Transient Thermal Impedance

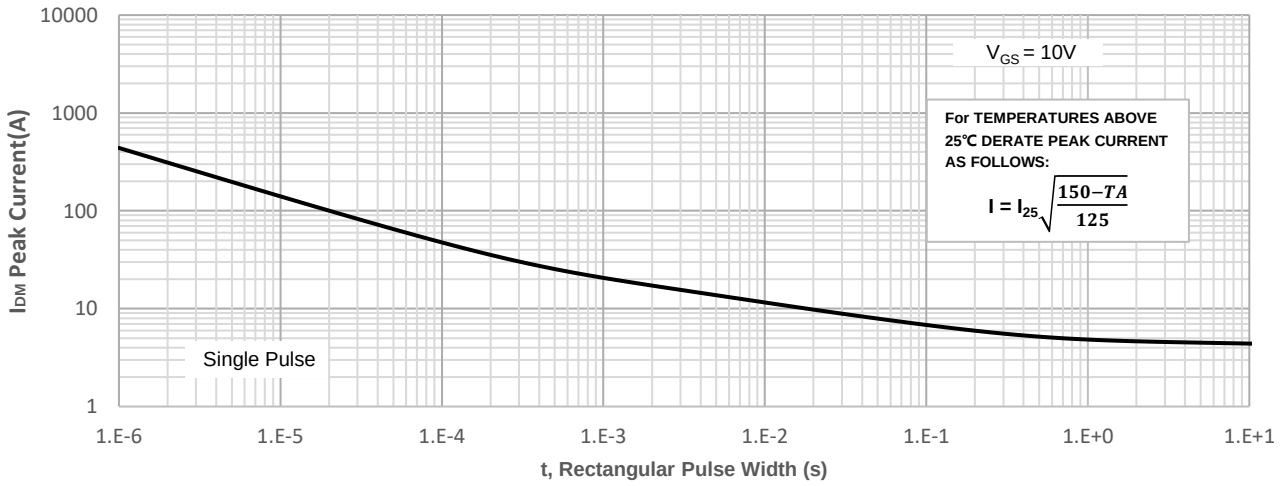


Figure 4: Peak Current Capacity

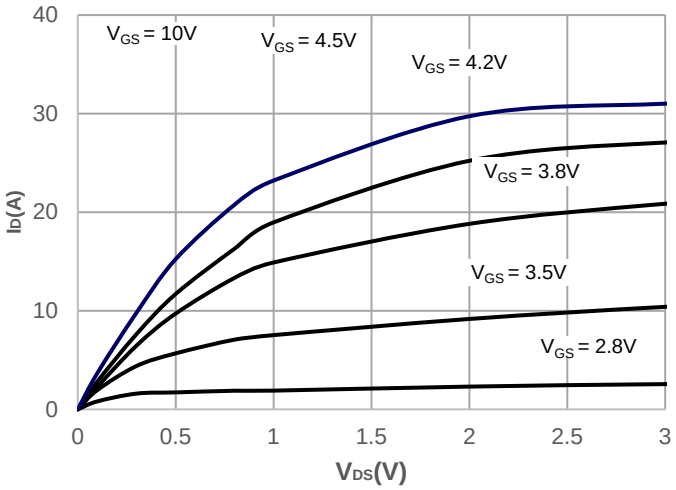


Figure 5: Output Characteristics

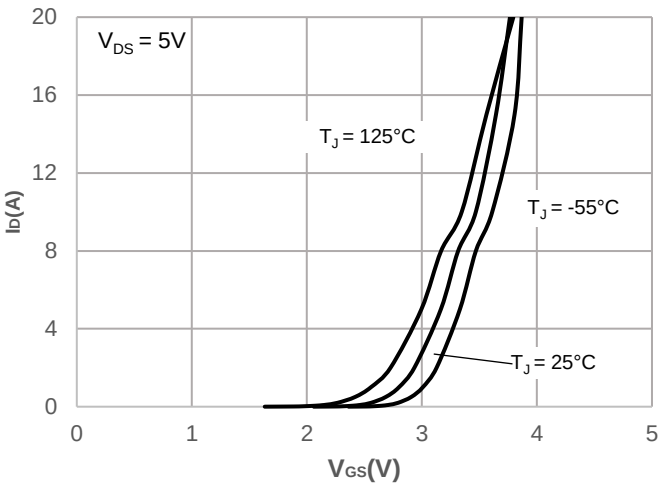


Figure 6: Typical Transfer Characteristics

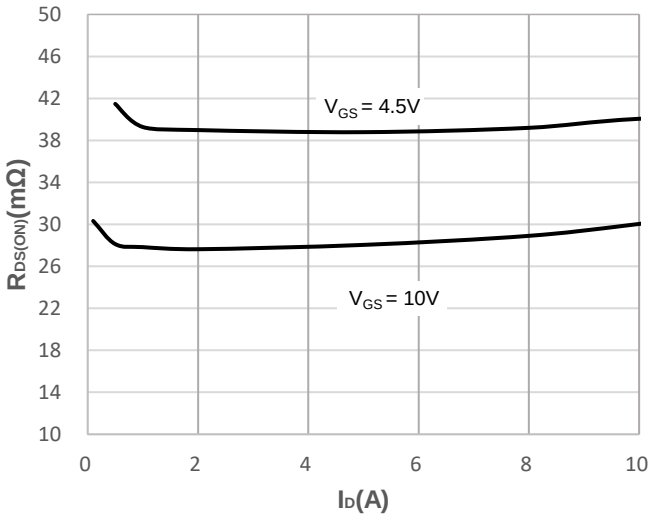


Figure 7: On-resistance vs. Drain Current

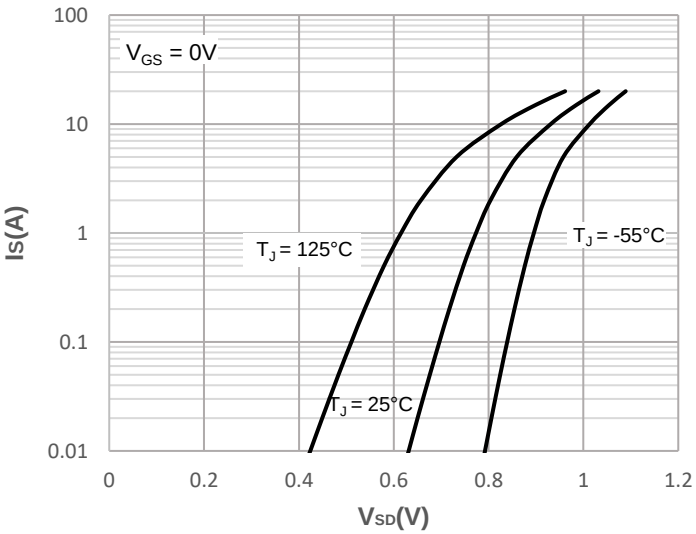


Figure 8: Body Diode Characteristics

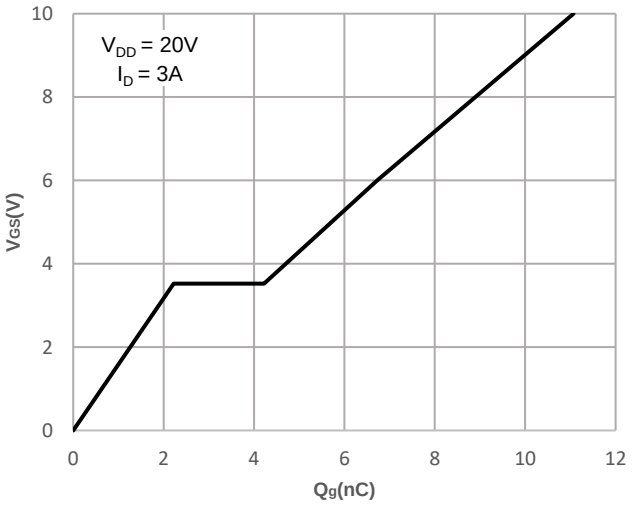


Figure 9: Gate Charge Characteristics

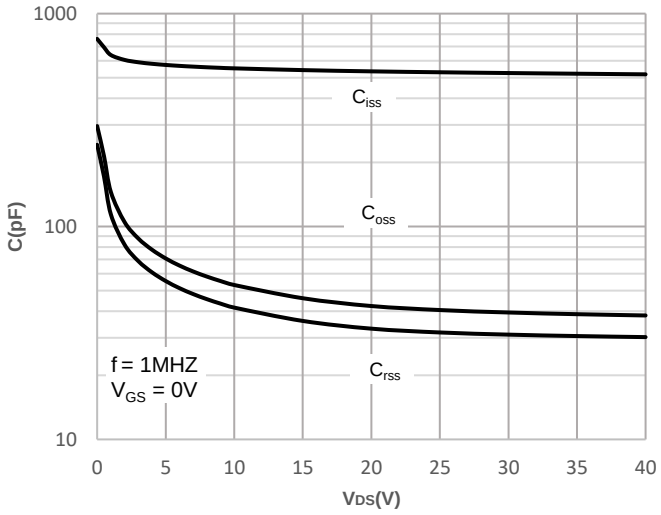


Figure 10: Capacitance Characteristics

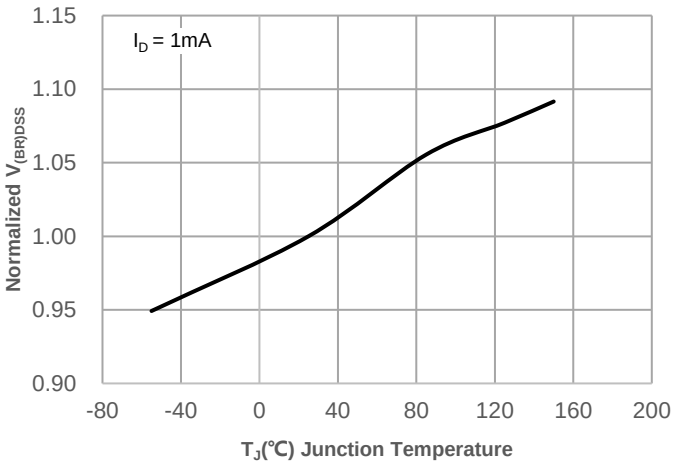


Figure 11: Normalized Breakdown voltage vs. Junction Temperature

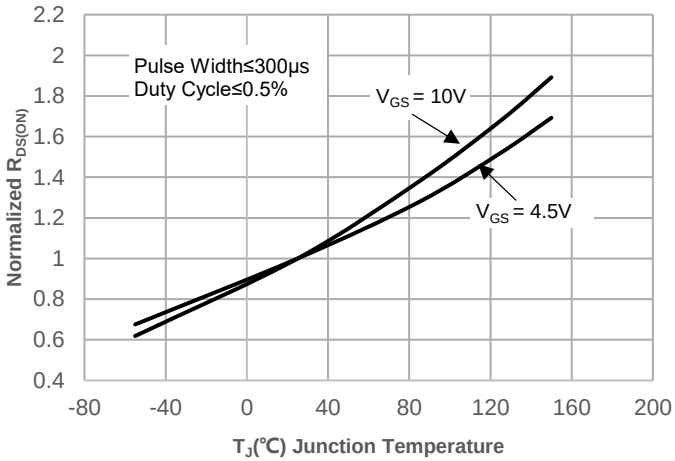


Figure 12: Normalized on Resistance vs. Junction Temperature

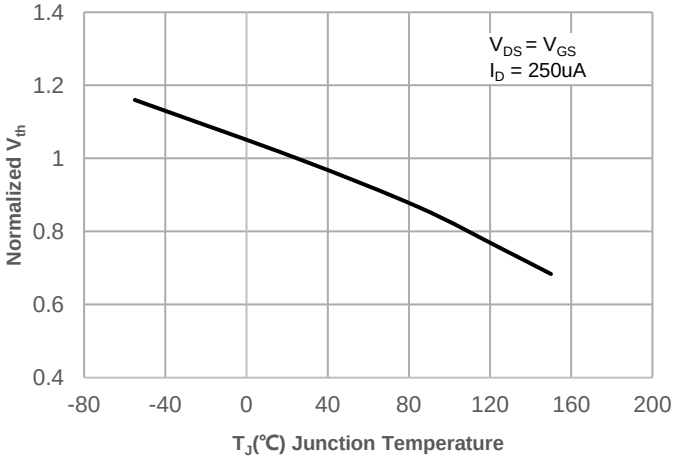


Figure 13: Normalized Threshold Voltage vs. Junction Temperature

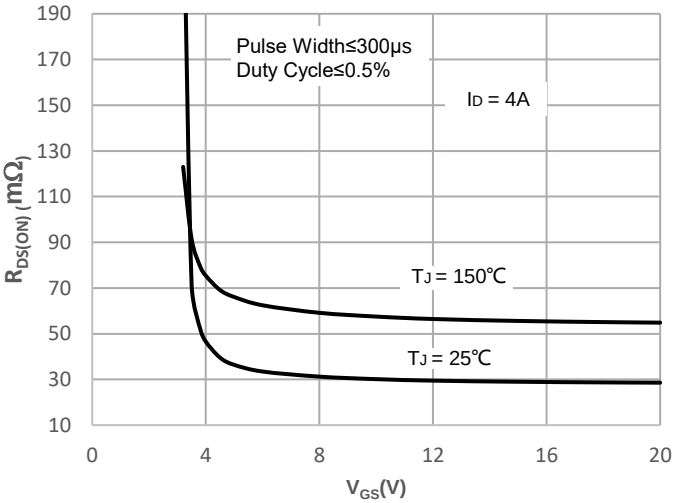


Figure 14: $R_{DS(ON)}$ vs. V_{GS}

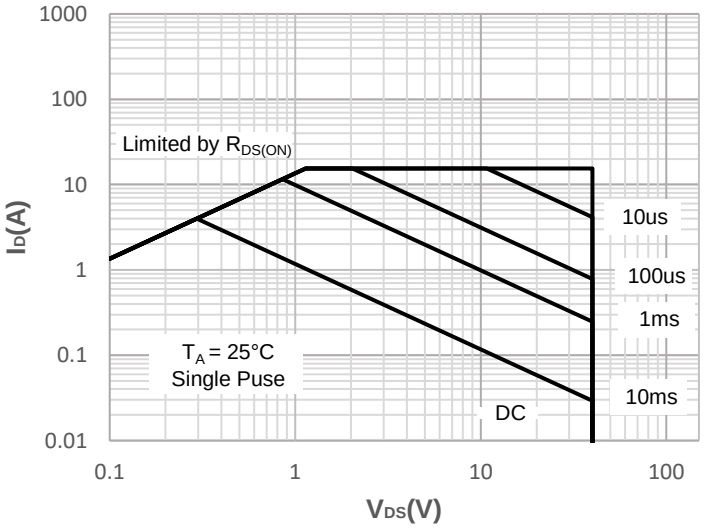
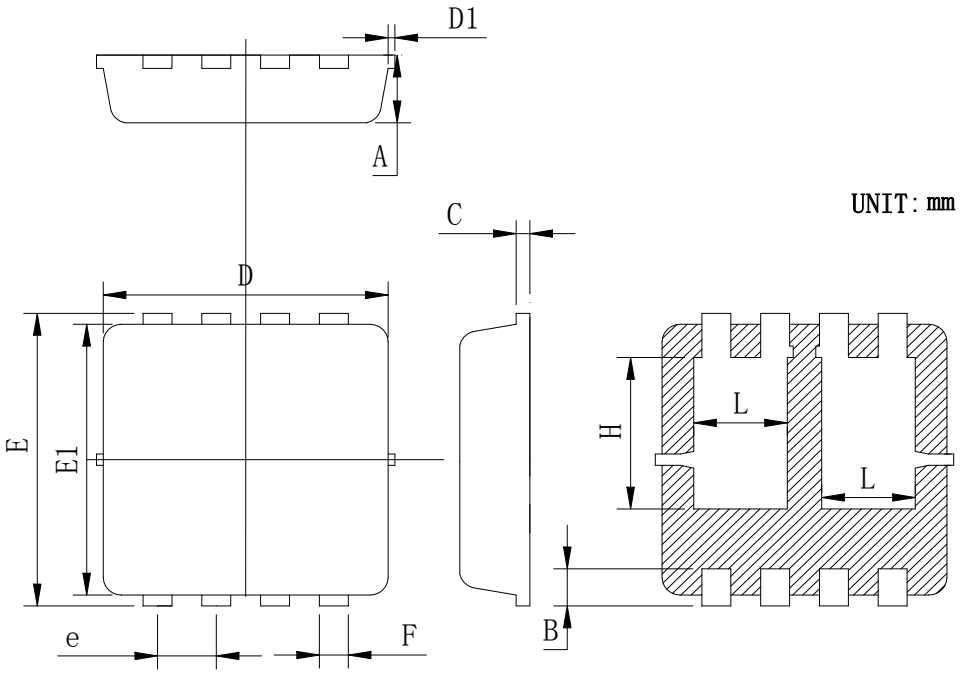


Figure 15: Maximum Safe Operating Area

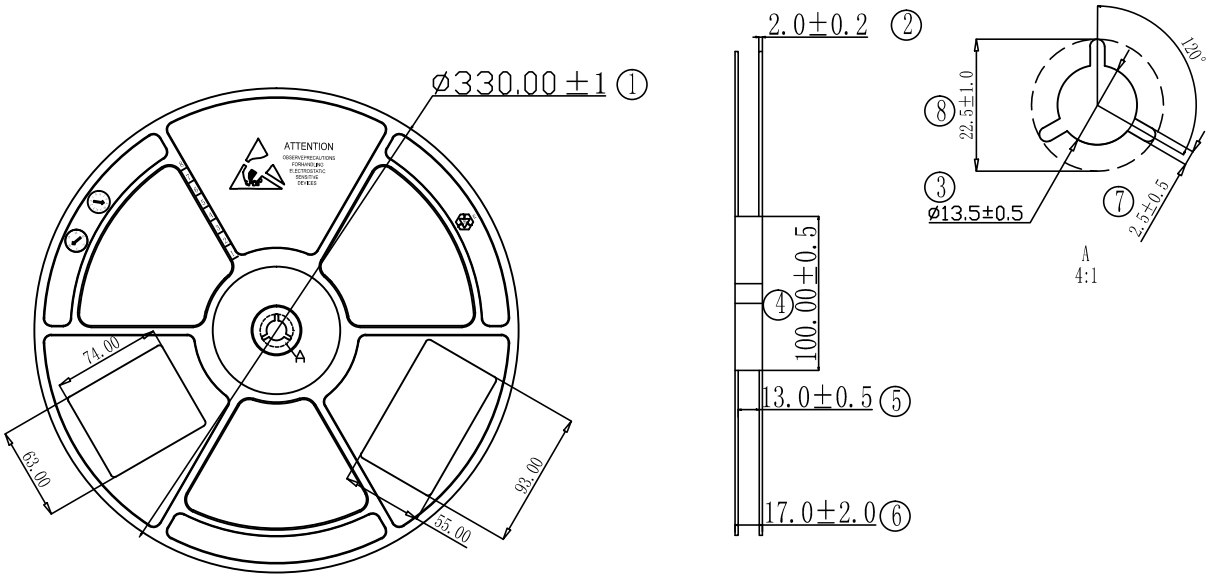
DFN3X3-8D Package Outline Data



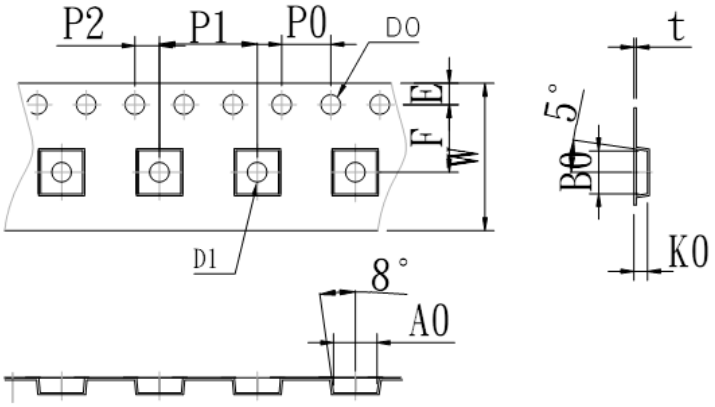
Symbol	Min	Typ	Max
A	0.725	0.775	0.825
B	0.28	0.38	0.48
C	0.13	0.15	0.20
D	3.05	3.15	3.25
D1			0.10
E	3.25	3.35	3.45
E1	3.0	3.1	3.2
e	0.60	0.65	0.70
F	0.27	0.32	0.37
H	1.63	1.73	1.83
L	0.93	1.03	1.13

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：

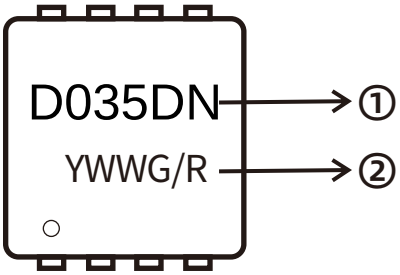
①. Part NO.

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)
2.0	2025-04-01	Release of final version

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