

TN04DN30PA

Dual N-Channel Enhancement Mode Power MOSFET

SOP-8

Product Summary

- $V_{DS} = 30V, I_D = 4A$
- $R_{DS(on)} < 38m\Omega @ V_{GS} = 10V$
- $R_{DS(on)} < 65m\Omega @ V_{GS} = 4.5V$

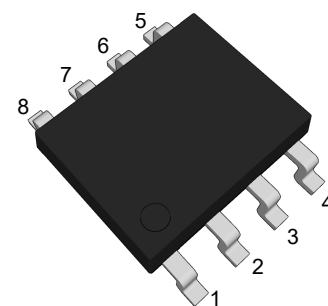
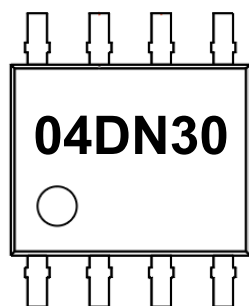
Features

- Advanced Trench Technology
- 100% Avalanche Tested
- RoHS and Reach Compliant
- Halogen and Antimony Free
- Moisture Sensitivity Level 3

Application

- Load Switch
- PWM Applications
- Power Management

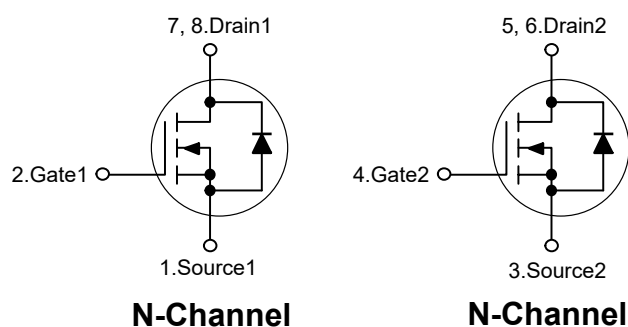
Marking Code



(Top View)

Pin	Description	Pin	Description
1	Source1	4	Gate2
2	Gate1	5,6	Drain2
3	Source2	7,8	Drain1

Schematic Diagram



Absolute Maximum Ratings

Ratings at 25°C ambient temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	I_D	4	A
Drain Current-Pulsed ^{Note1}	I_{DM}	16	A
Maximum Power Dissipation	P_D	1.2	W
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Thermal Characteristics

Thermal Resistance, Junction-to-Ambient ^{Note2}	$R_{\theta JA}$	104	°C/W
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Electrical Characteristics(T_J=25°C unless otherwise specified)

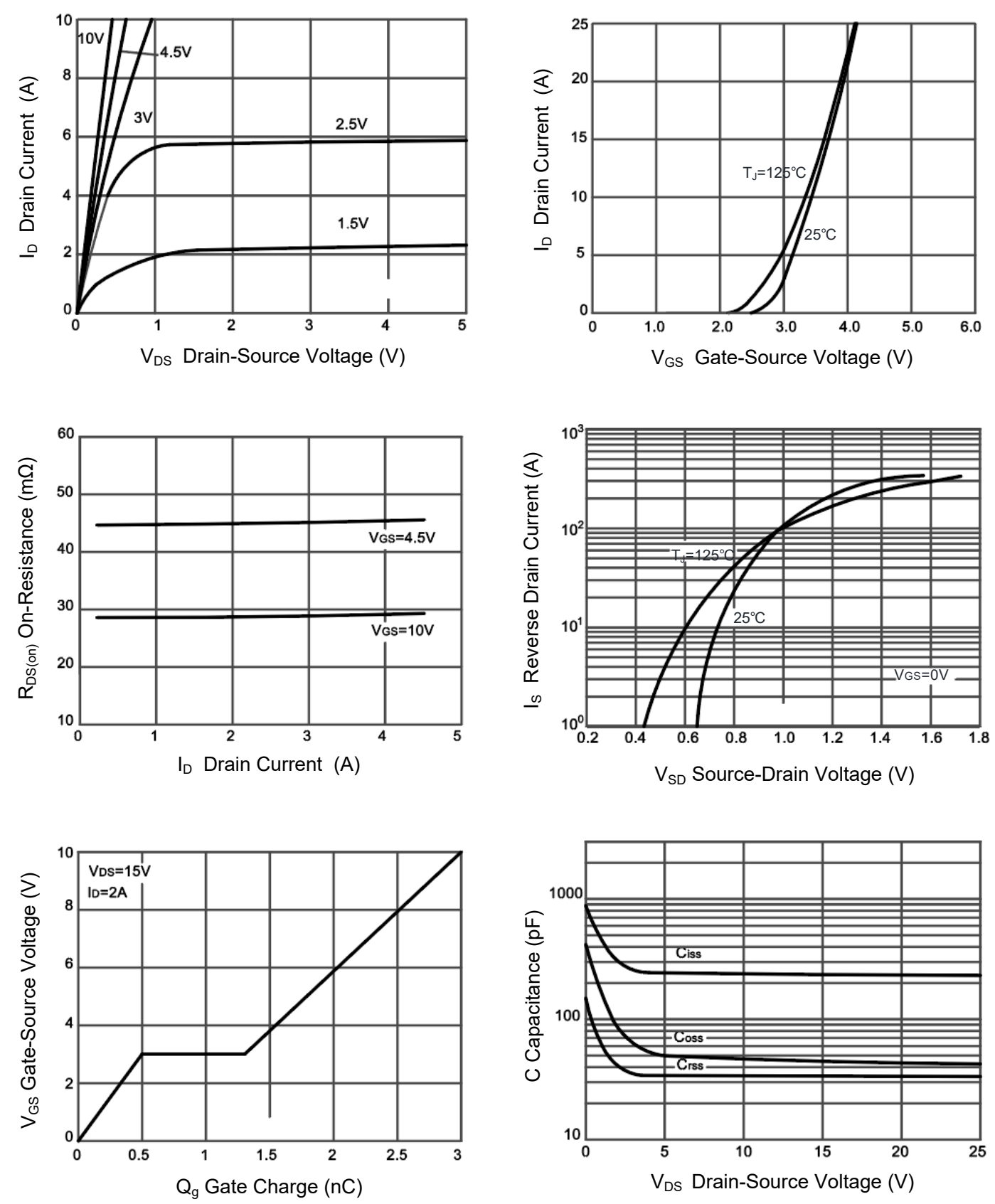
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V,I _D =250μA	30	--	--	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V,V _{GS} =0V	--	--	1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V,V _{DS} =0V	--	--	±100	nA
Gate Threshold Voltage ^{Note3}	V _{GS(th)}	V _{DS} =V _{GS} ,I _D =250μA	1.0	1.5	2.5	V
Drain-Source On-Resistance ^{Note3}	R _{DS(on)}	V _{GS} =10V,I _D =4A	--	29	38	mΩ
		V _{GS} =4.5V,I _D =3A	--	45	65	mΩ
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =15V,V _{GS} =0V,f=1MHz	--	233	--	pF
Output Capacitance	C _{oss}		--	44	--	pF
Reverse Transfer Capacitance	C _{rss}		--	33	--	pF
Total Gate Charge	Q _g	V _{DS} =15V V _{GS} =10V,I _D =2A	--	3	--	nC
Gate-Source Charge	Q _{gs}		--	0.5	--	nC
Gate-Drain Charge	Q _{gd}		--	0.8	--	nC
Switching Characteristics						
Turn-on Delay Time	t _{d(on)}	V _{DD} =15V,I _D =4A, V _{GS} =10V,R _{GEN} =3Ω	--	4	--	nS
Turn-on Rise Time	t _r		--	2.1	--	nS
Turn-off Delay Time	t _{d(off)}		--	15	--	nS
Turn-off Fall Time	t _f		--	3.2	--	nS
Source-Drain Diode Characteristics						
Diode Forward Voltage ^{Note3}	V _{SD}	V _{GS} =0V,I _S =4A	--	--	1.2	V
Diode Forward Current ^{Note2}	I _S		--	--	4	A

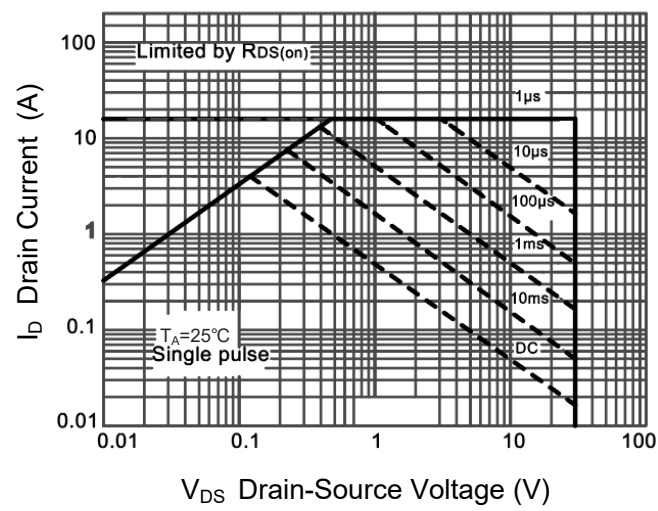
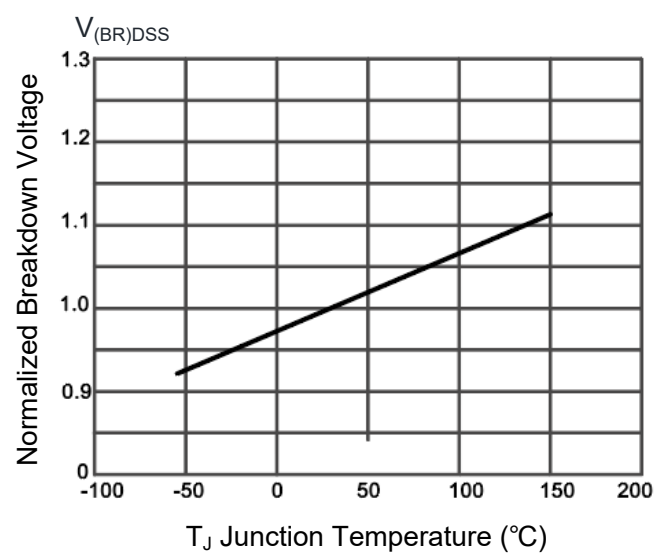
Note: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.

2.Surface Mounted on FR4 Board, t ≤ 10 sec.

3.Pulse Test: Pulse width≤300μs, duty cycle≤0.5%

Typical Characteristic Curves

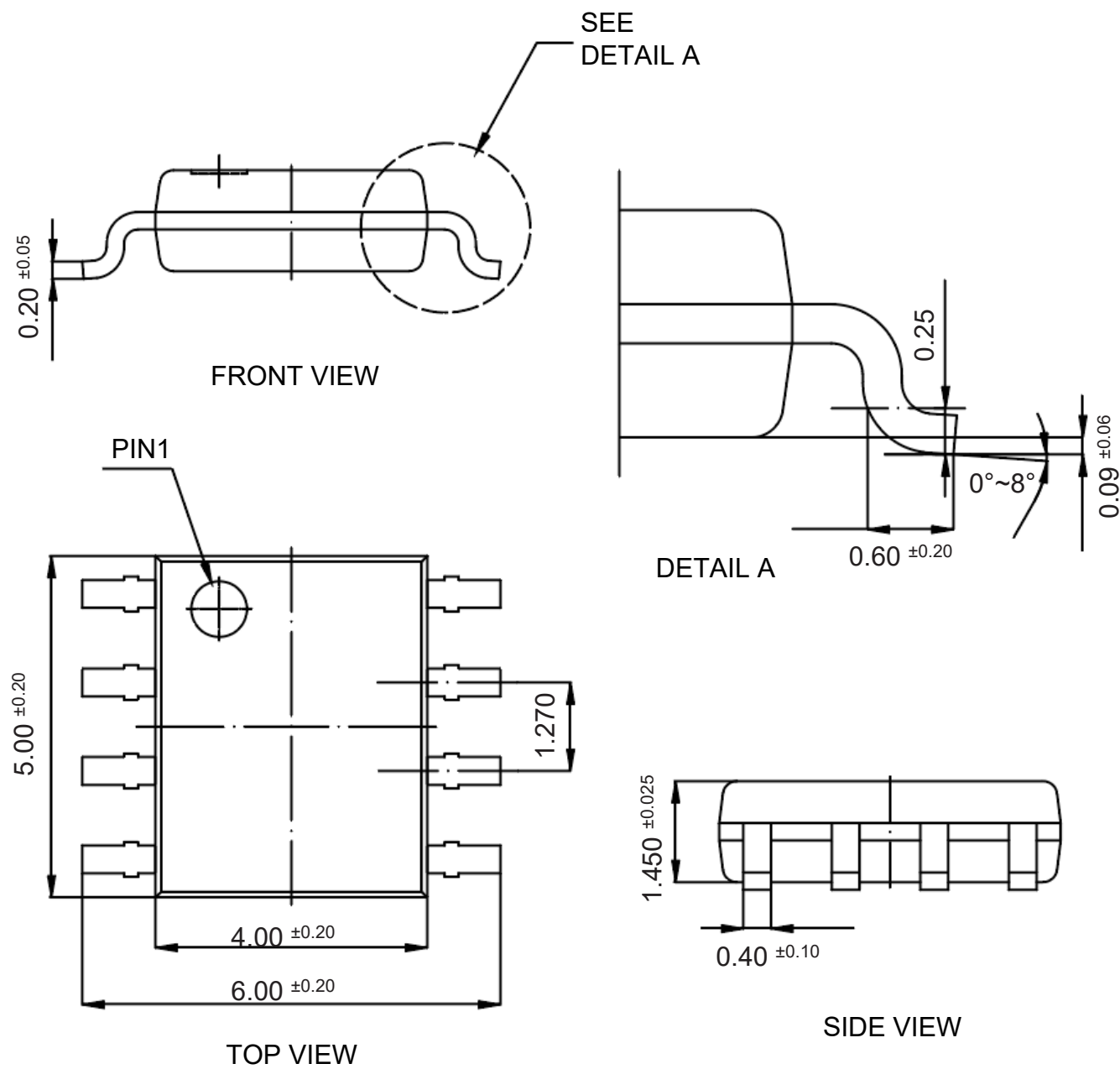




Package Outline

SOP-8

Dimensions in mm

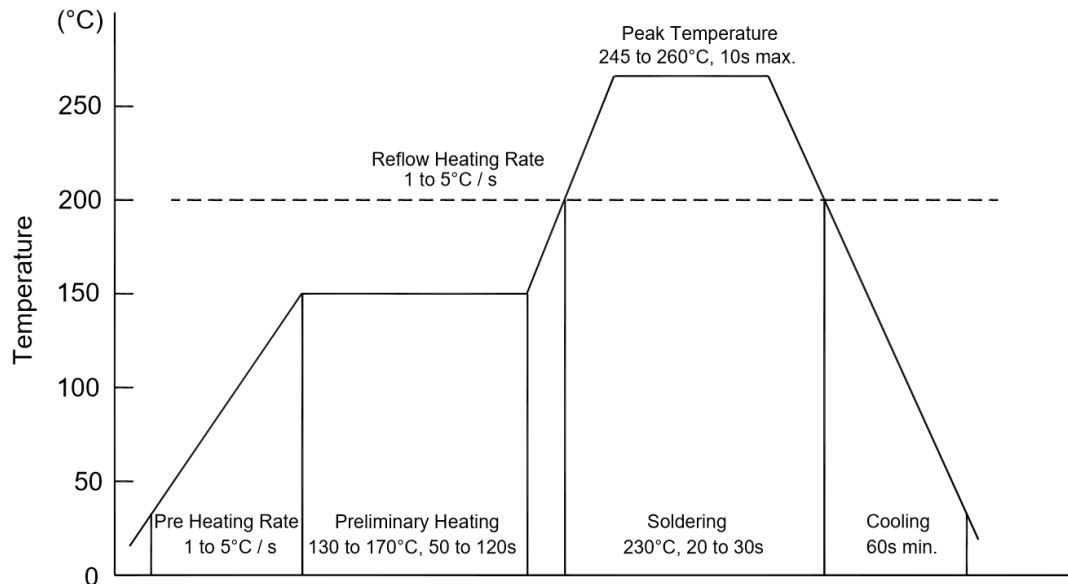


Ordering Information

Device	Package	Shipping
TN04DN30PA	SOP-8	4,000PCS/Reel&13inches

Conditions of Soldering and Storage

◆ Recommended condition of reflow soldering



Recommended peak temperature is over 245°C. If peak temperature is below 245°C, you may adjust the following parameters:

- Time length of peak temperature (longer)
- Time length of soldering (longer)
- Thickness of solder paste (thicker)

◆ Conditions of hand soldering

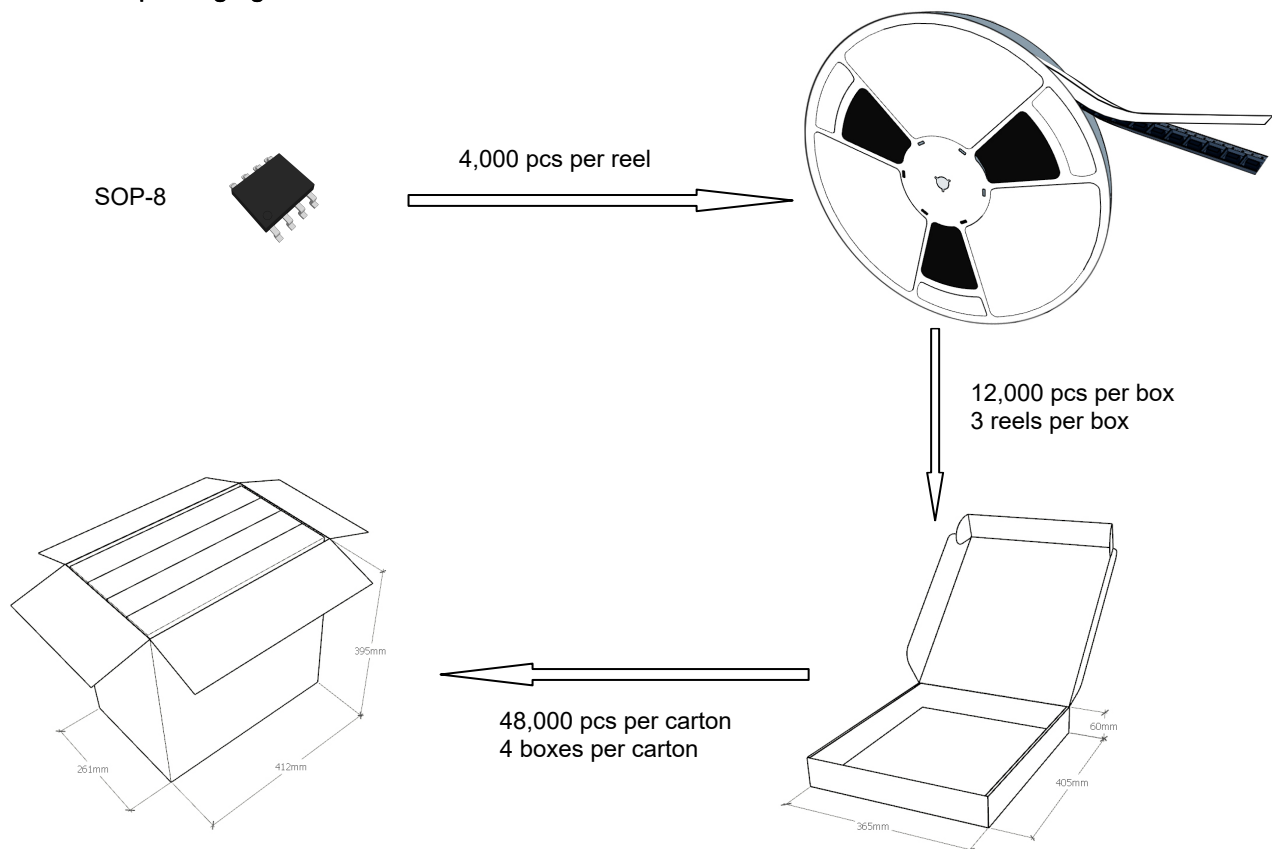
- Temperature: 300°C
- Time: 3s max.
- Times: one time

◆ Storage conditions

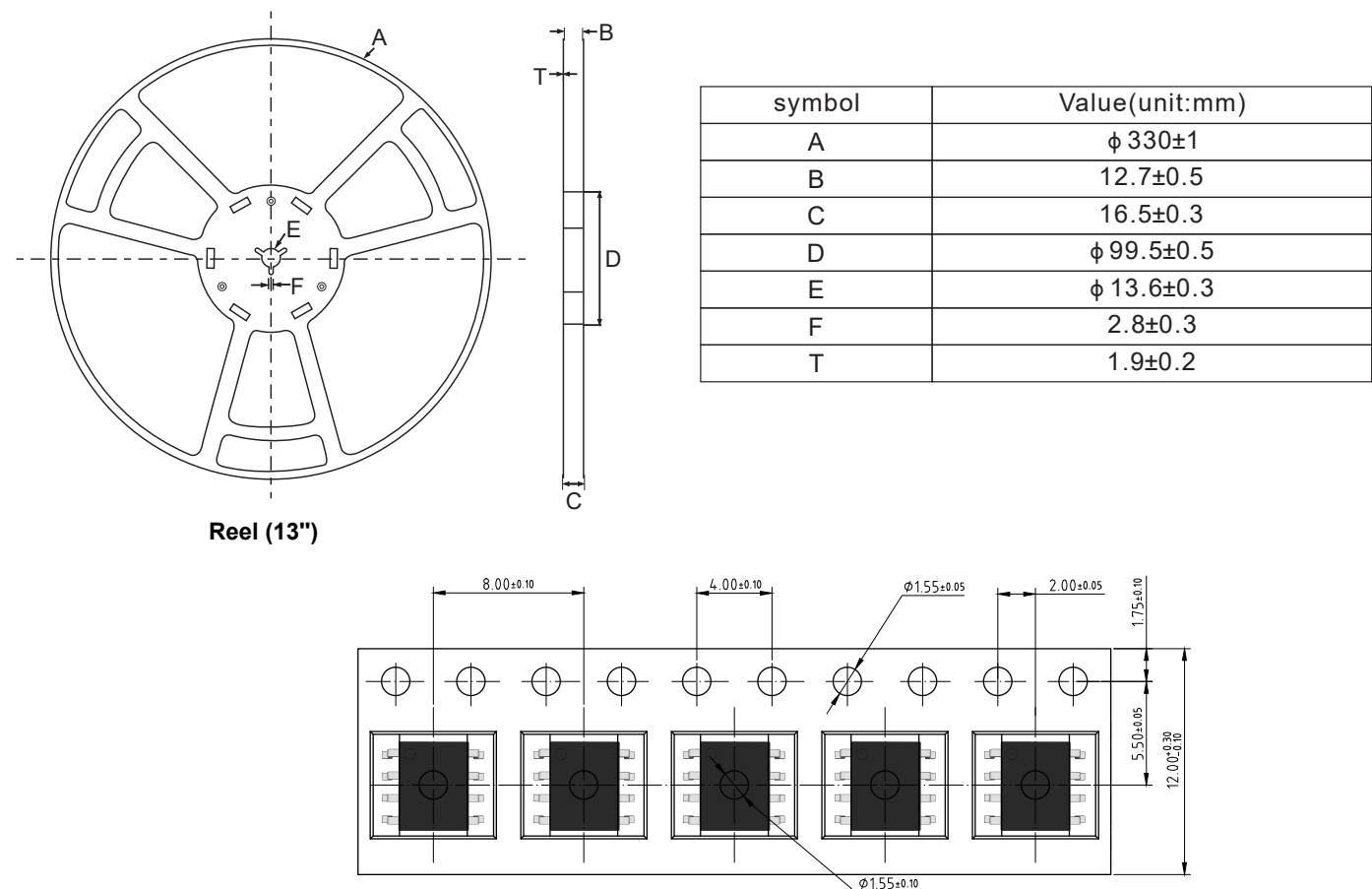
- **Temperature**
5 to 40°C
- **Humidity**
30 to 80% RH
- **Recommended period**
One year after manufacturing

Package Specifications

- The method of packaging



◆ Embossed tape and reel data



Contact Information

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For additional information, please contact your local Sales Representative.



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Users are advised to pay attention to the parameter limit values specified in the product specification and maintain a certain margin in design or application to ensure that the product does not exceed the parameter limit values defined in the product specification. This precaution should be taken to avoid exceeding one or more of the limit values, which may result in permanent irreversible damage to the product, ultimately affecting the quality and reliability of the system or equipment.

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