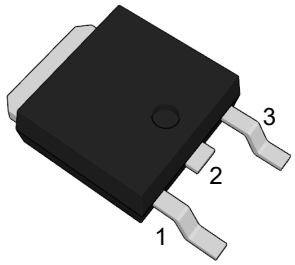
TN70H07NTE

N-Channel Enhancement Mode Power MOSFET

Product Summary

- V_{DS}= 700V,I_D= 7A
- $R_{DS(on)}$< 1.8Ω @V_{GS}= 10V

TO-252



(Top View)

Pin	Description
1	Gate
2	Drain
3	Source

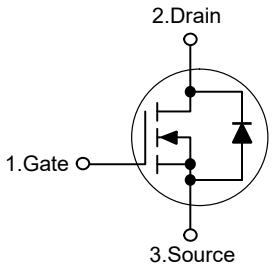
Features

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

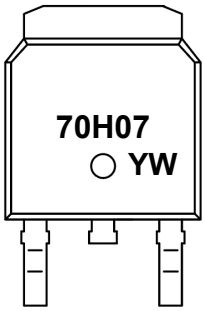
Application

- High Frequency Switching Mode Power Supply
- Electronic ballast
- Uninterruptible Power Supply

Schematic Diagram



Marking Code



Absolute Maximum Ratings

Ratings at 25℃ case temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	700	V
Gate-Source Voltage	V_{GS}	±30	V
Drain Current-Continuous	I_D	7	A
Drain Current-Pulsed Note1	I_{DM}	28	A
Maximum Power Dissipation	P_D	170	W
Single Pulse Avalanche Energy Note2	E_{AS}	174	mJ
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Thermal Characteristics

Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	0.74	°C/W

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Electrical Characteristics

(T_J=25℃ 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	700	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=700V,V_{GS}=0V	--	--	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±30V,V_{DS}=0V	--	--	±100	nA
Gate Threshold Voltage Note2	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	2	3	4	V
Drain-Source On-Resistance Note2	$R_{DS(on)}$	V_{GS}=10V,I_D=3.5A	--	1.5	1.8	Ω
Forward Transconductance Note3	g_{FS}	V_{DS}=5V,I_D=1A	--	3	--	S
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=25V,V_{GS}=0V,f=1MHz	--	1095	--	pF
Output Capacitance	C_{oss}		--	80	--	pF
Reverse Transfer Capacitance	C_{rss}		--	9	--	pF
Gate Resistance	R_g	V_{DS}=0V,V_{GS}=0V,f=1MHz	--	3.2	--	Ω
Total Gate Charge	Q_g	V_{DS}=560V, I_D=7A, V_{GS}=10V	--	24	--	nC
Gate-Source Charge	Q_{gs}		--	6.7	--	nC
Gate-Drain Charge	Q_{gd}		--	11	--	nC
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=350V, I_D=7A, V_{GS}=10V, R_{GEN}=24Ω	--	17	--	nS
Turn-on Rise Time	t_r		--	31	--	nS
Turn-off Delay Time	$t_{d(off)}$		--	57	--	nS
Turn-off Fall Time	t_f		--	32	--	nS
Source-Drain Diode Characteristics						
Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_S=7A	--	--	1.2	V
Diode Forward Current	I_S		--	--	7	A

Note: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. EAS Condition: T_J=25℃,V_{DD}=100V,V_G=10V,R_G=25Ω,L=10mH,I_{AS}=5.9A.
3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%.

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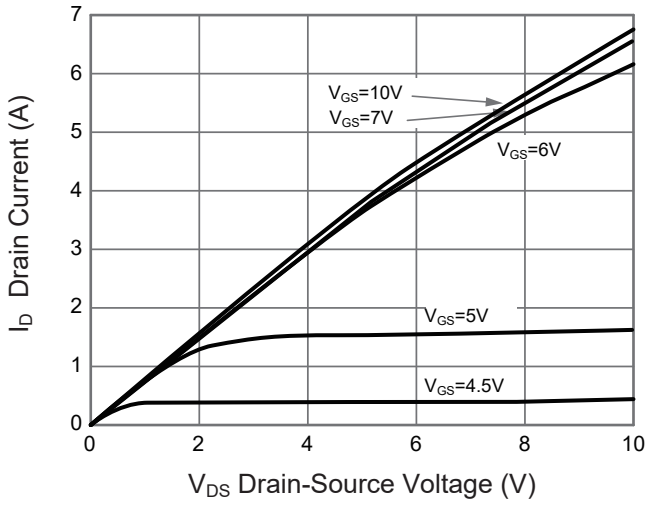
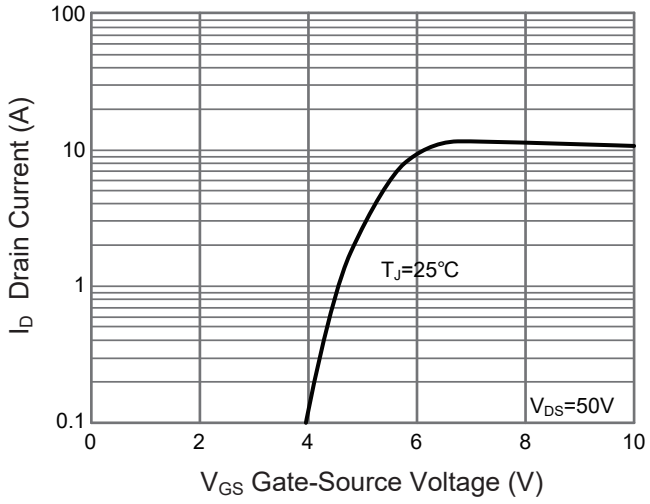
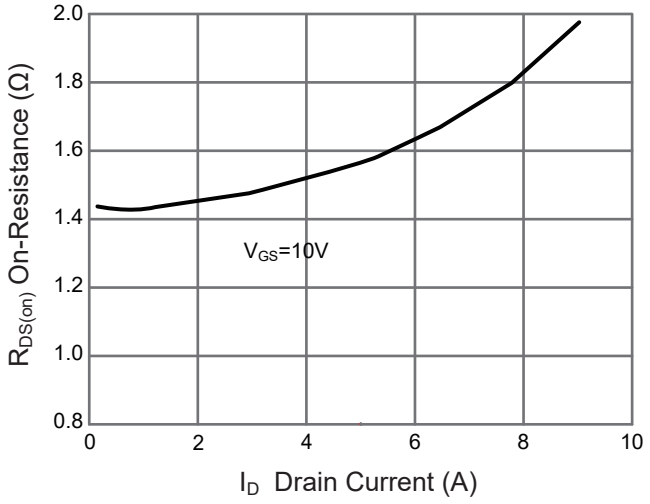
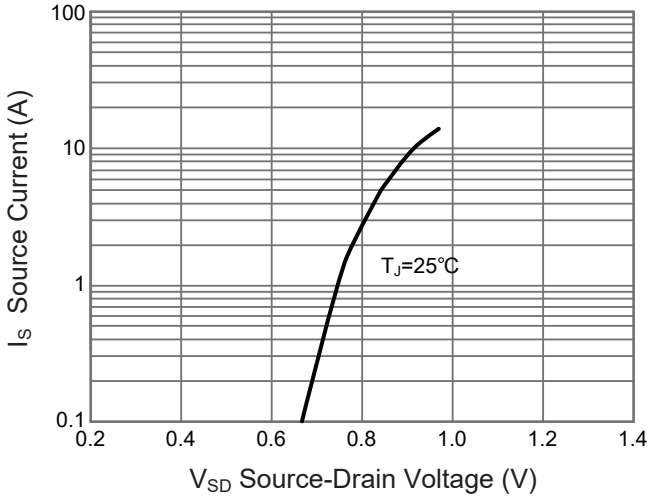
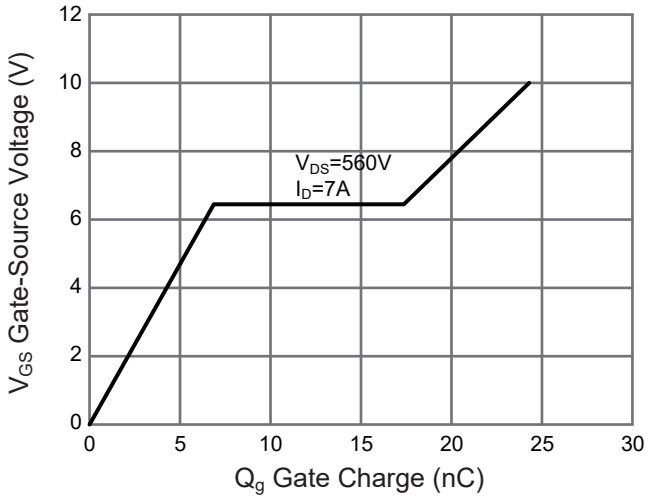
Typical Characteristic Curves

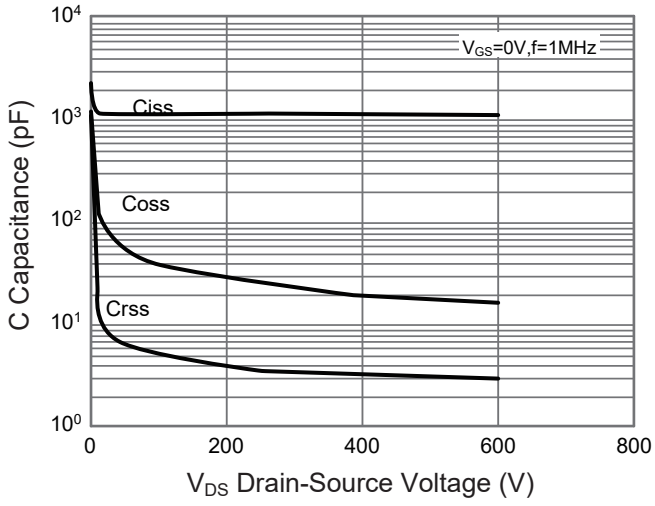












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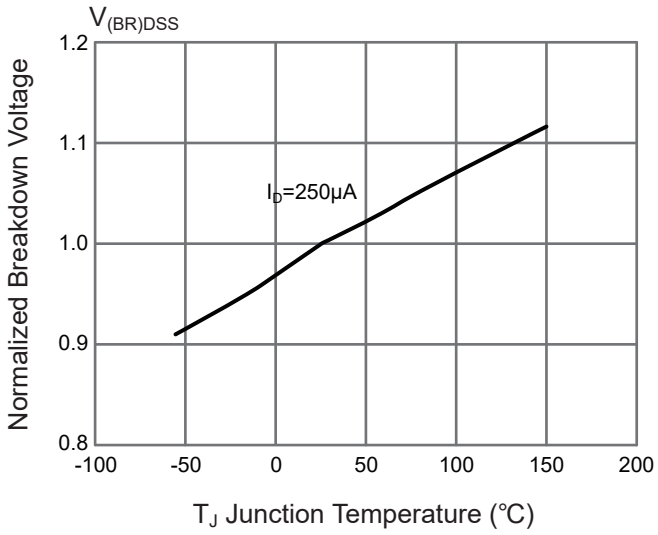

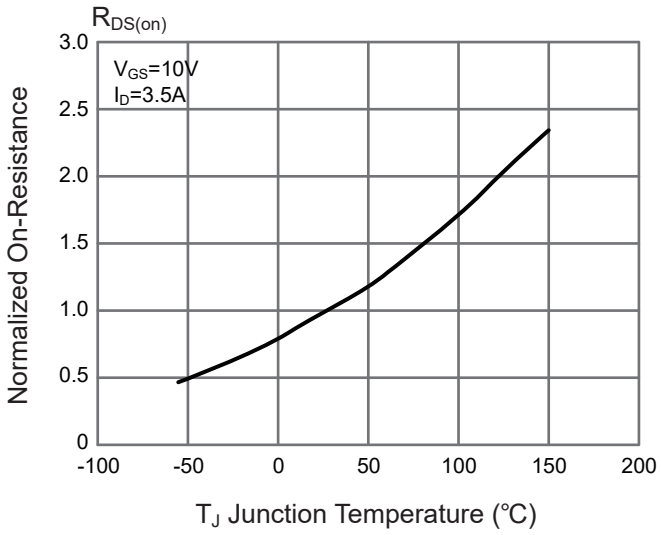

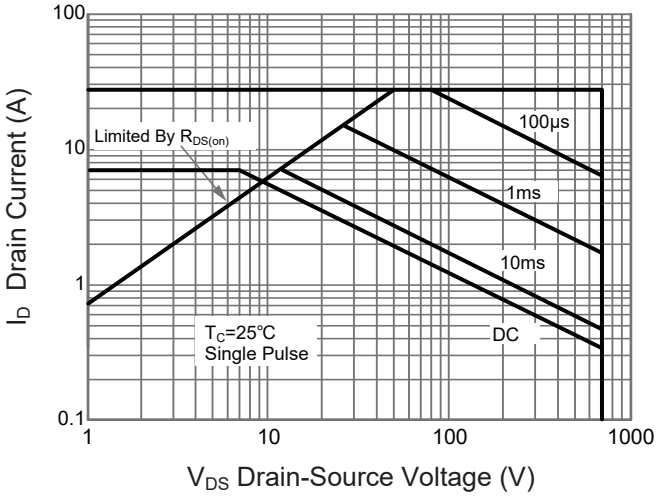

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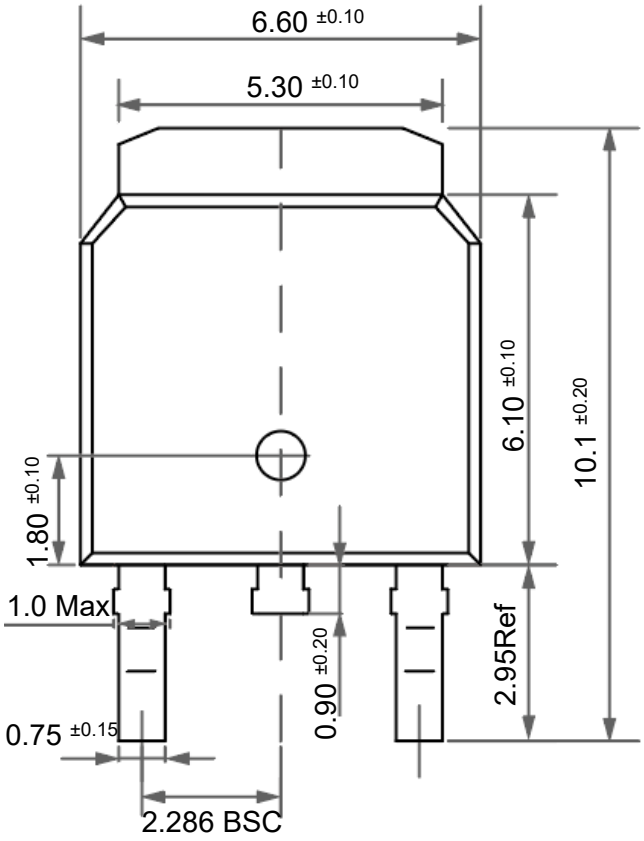
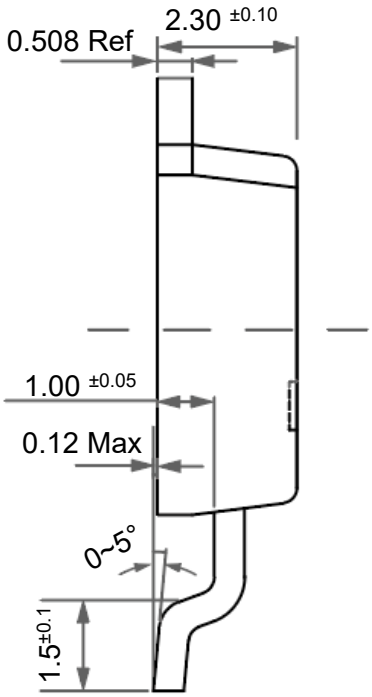
Package Outline

TO-252

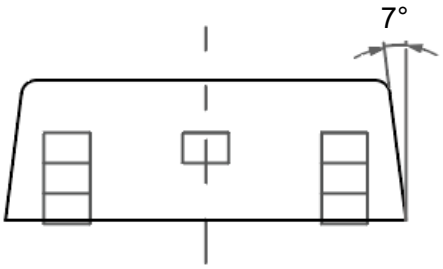
Dimensions in mm



Front View



Side View



Bottom View

Ordering Information

Device	Package	Shipping
TN70H07NTE	TO-252	2,500PCS/Reel&13inches

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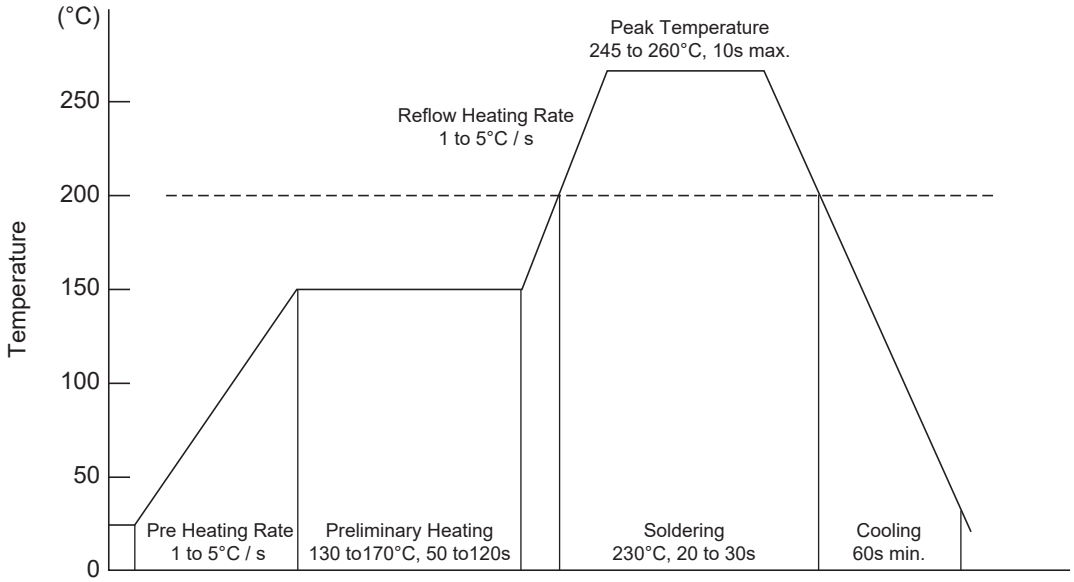
Conditions of Soldering and Storage

◆ 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

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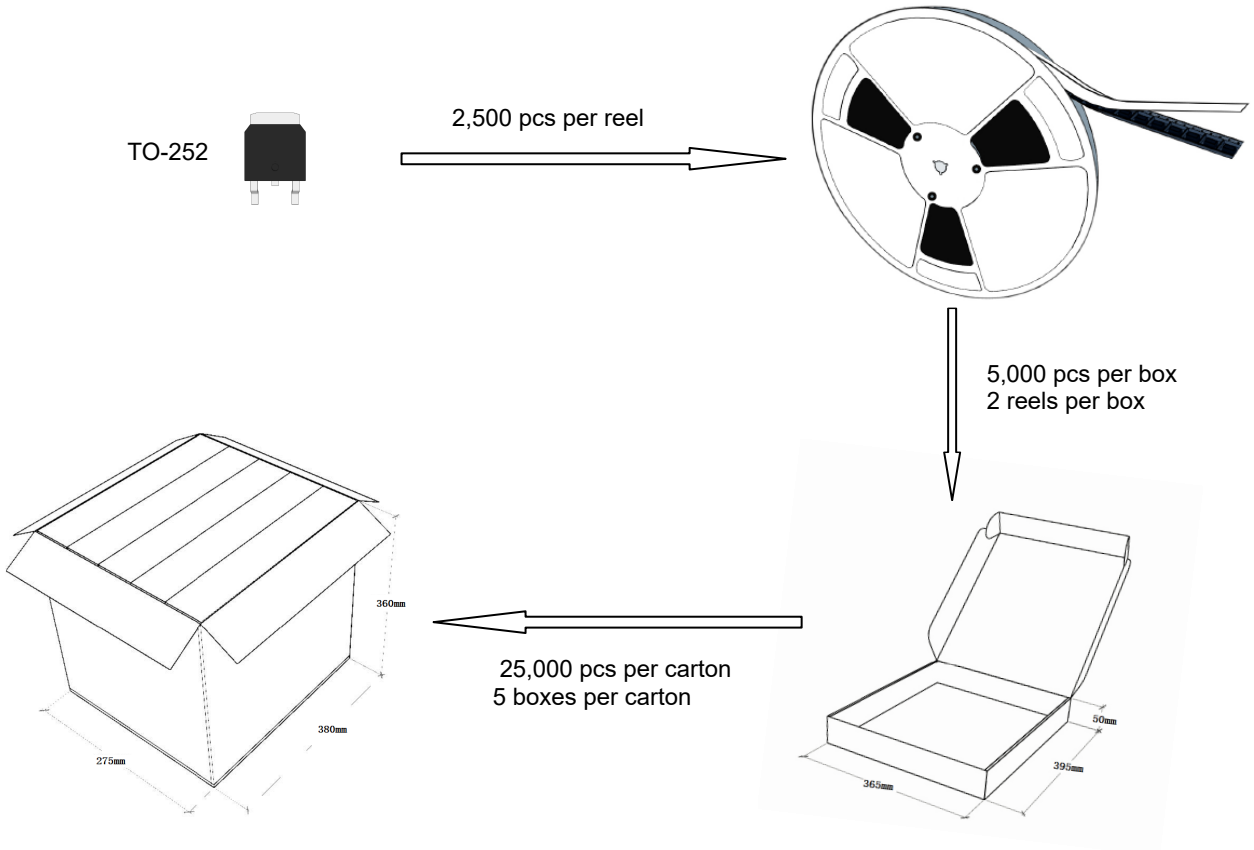
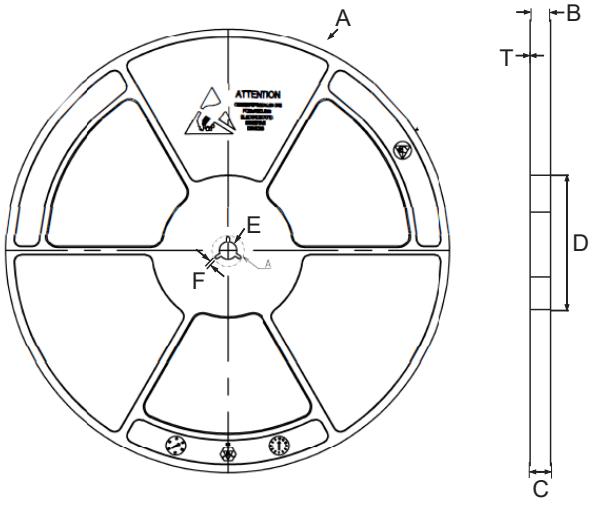
Package Specifications

- The method of packaging



◆ **reel data**



Reel (13")

Symbol	Value(unit:mm)
A	Φ330.2±1
B	17±0.5
C	21.2±2
D	Φ100±0.5
E	Φ13.4±0.2
F	2.3±0.2
T	2.1±0.2

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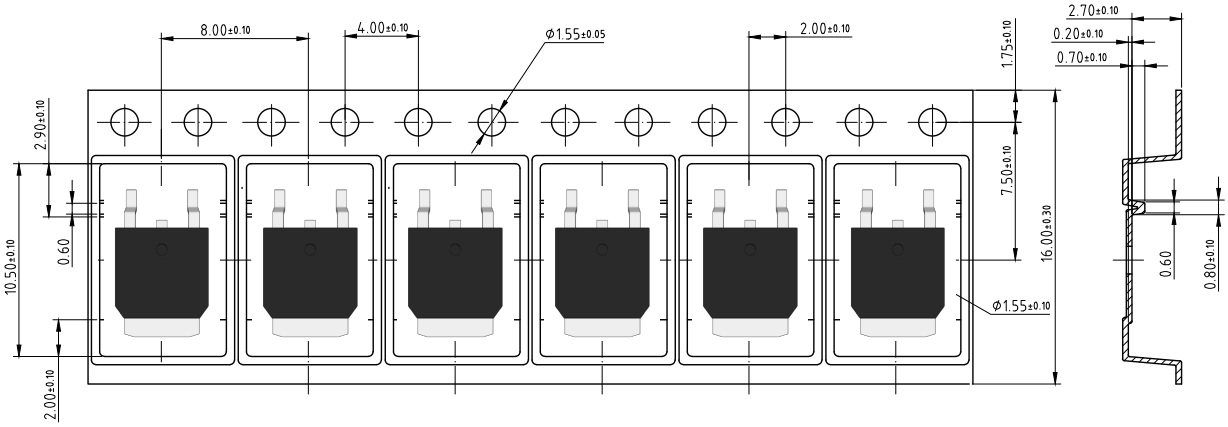
◆ **Embossed tape data**



Contact Information

TANI website: **http://www.tanisemi.com** Email:tani@tanisemi.com

For additional information, please contact your local Sales Representative.

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