TN30P30TE

P-Channel Enhancement Mode Power MOSFET

Product Summary

- V_{DS}= -30V,I_D= -30A
- $R_{DS(on)}$< 12mΩ @V_{GS}= -10V
- $R_{DS(on)}$< 16.5mΩ @V_{GS}= -4.5V

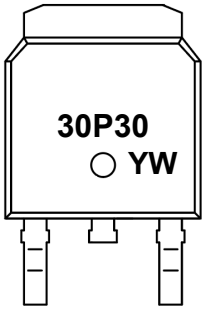
Features

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

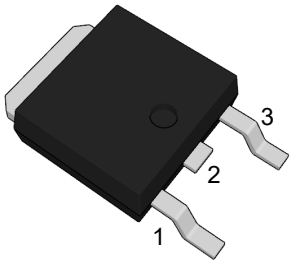
Application

- Load Switch
- PWM Application
- Power management

Marking Code



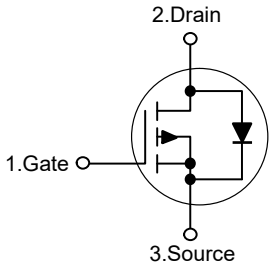
TO-252



(Top View)

Pin	Description
1	Gate
2	Drain
3	Source

Schematic Diagram



Absolute Maximum Ratings

Ratings at 25℃ case 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	$-I_D$	30	A
Drain Current-Pulsed Note1	$-I_{DM}$	120	A
Maximum Power Dissipation	P_D	35	W
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Thermal Characteristics

Thermal Resistance,Junction-to-Case	$R_{\theta JC}$	3.6	°C/W

Electrical Characteristics

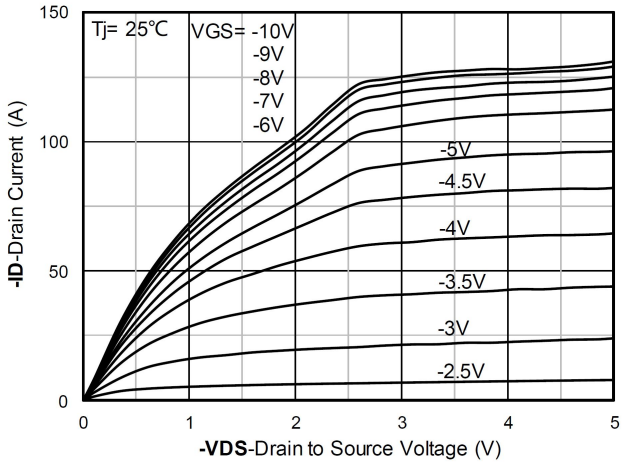
(T_J=25℃ unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	VGS=0V , ID=-250uA	-30	-	-	V
Drain-Source Leakage Current	I_{DSS}	VDS=-24V , VGS=0V , TJ=25℃	-	-	-1	uA
Gate-Source Leakage Current	I_{GSS}	VGS=±20V , VDS=0V	-	-	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	VGS=VDS , ID =-250uA	-1.2	-1.6	-2.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	VGS=-10V , ID=-20A	-	13	18	mΩ
		VGS=-4.5V , ID=-15A	-	22	30	
Dynamic characteristics						
Input Capacitance	C_{iss}	VDS=-15V , VGS=0V , f=1MHz	-	1600	-	pF
Output Capacitance	C_{oss}		-	350	-	
Reverse Transfer Capacitance	C_{rss}		-	300	-	
Total Gate Charge	Q_g	VDS=-15V , VGS=-10V , ID=-10A	-	30	-	nC
Gate-Source Charge	Q_{gs}		-	5.5	-	
Gate-Drain Charge	Q_{gd}		-	8	-	
Switching Characteristics						
Turn-On Delay Time	$T_{d(on)}$	VDD=-15V,VGS=-10V,RG=3Ω, ID=-10A	-	10	-	nS
Rise Time	T_r		-	60	-	
Turn-Off Delay Time	$T_{d(off)}$		-	52	-	
Fall Time	T_f		-	70	-	
Diode Characteristics						
Diode Forward Voltage	V_{SD}	VGS=0V , IS=-1A , TJ=25℃	-	-	1.2	V
Maximum Body-Diode Continuous Current	I_S		-	-	-30	A
Reverse Recovery Time	T_{rr}	I_S=-5A, di/dt=100A/us, TJ=25℃	-	15	-	nS
Reverse Recovery Charge	Q_{rr}		-	5	-	nC

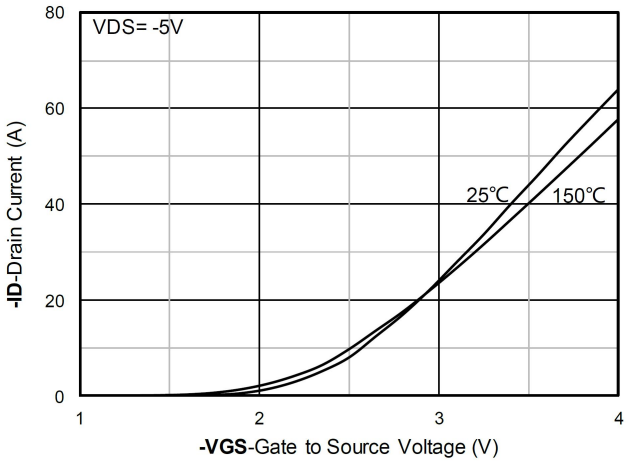
Note :

1. The EAS test condition is VDD=-15V,VGS=-10V,L=0.5mH,RG=25Ω

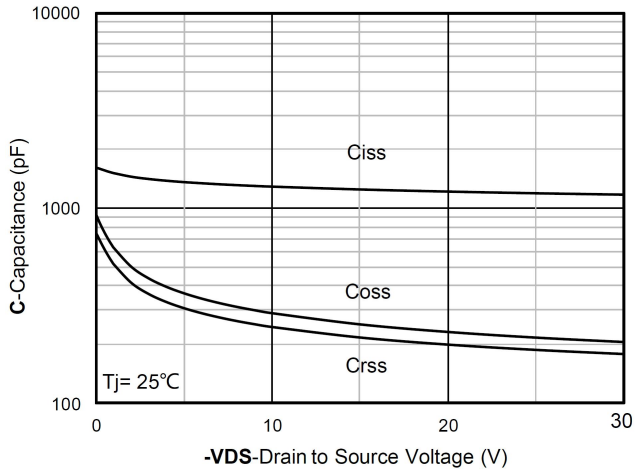
Typical Characteristic Curves



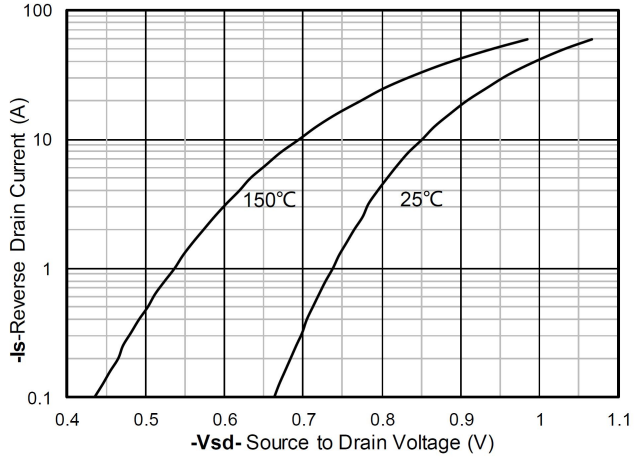
Output Characteristics



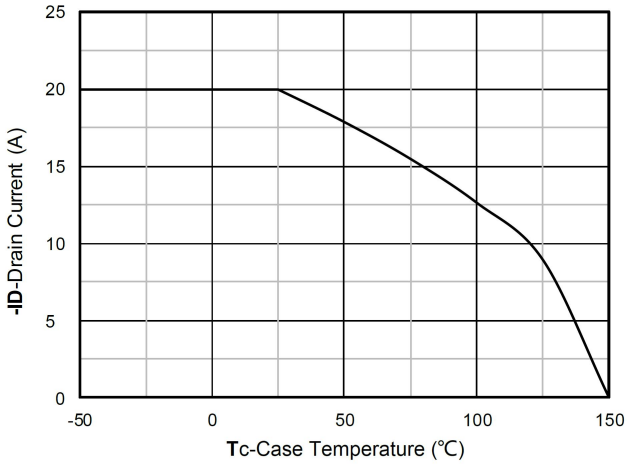
Transfer Characteristics



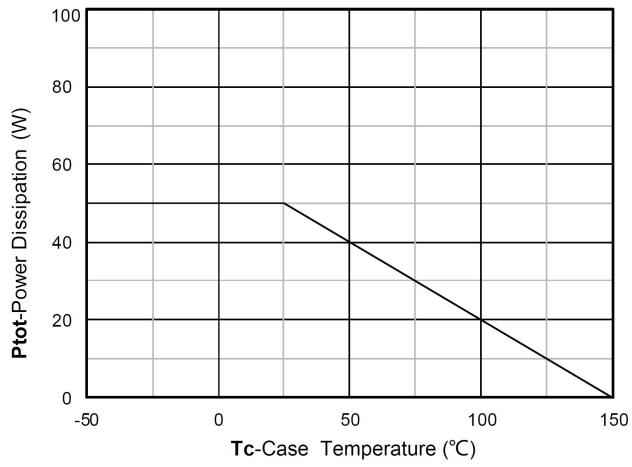
Capacitance Characteristics



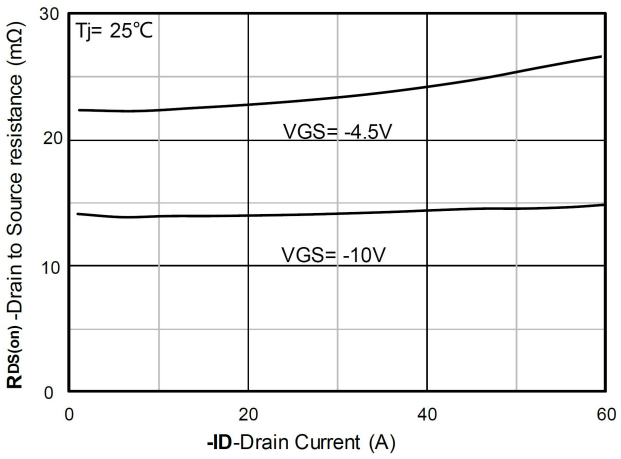
Forward characteristics of reverse diode



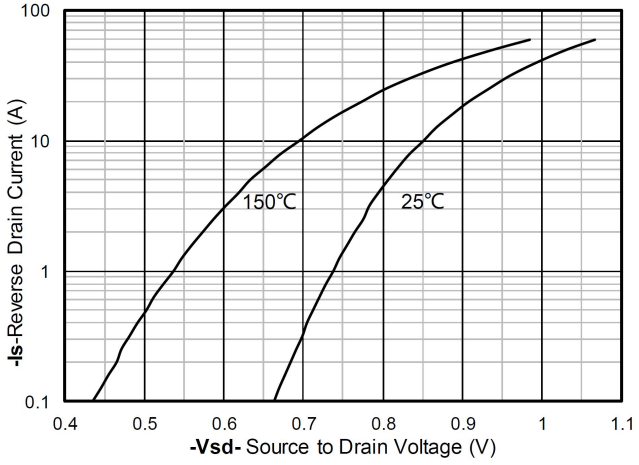
Current dissipation



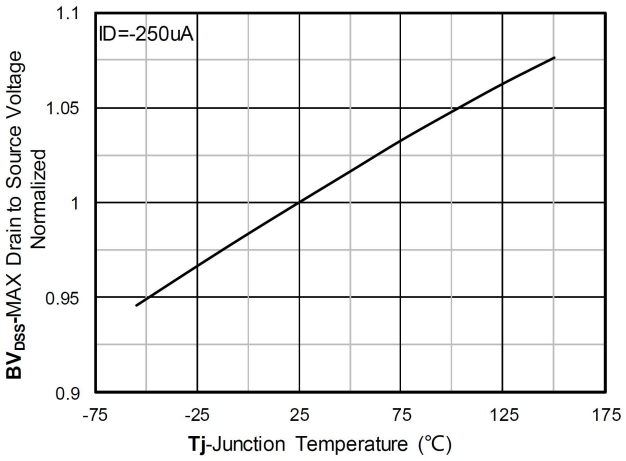
Power dissipation



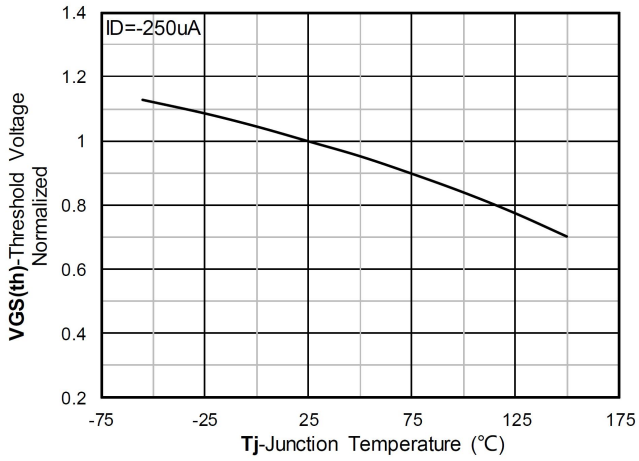
RDS(on) VS Drain Current



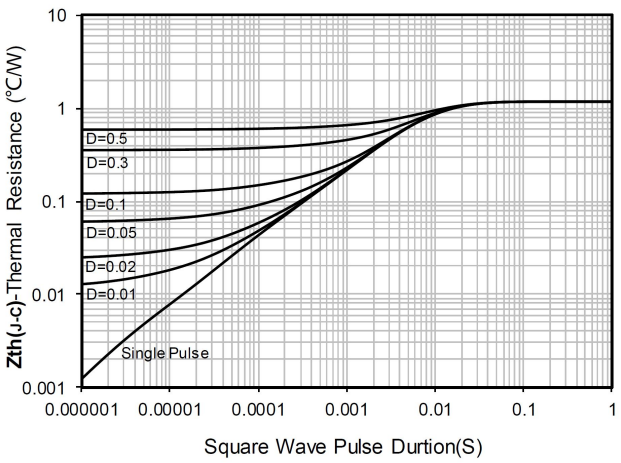
Forward characteristics of reverse diode



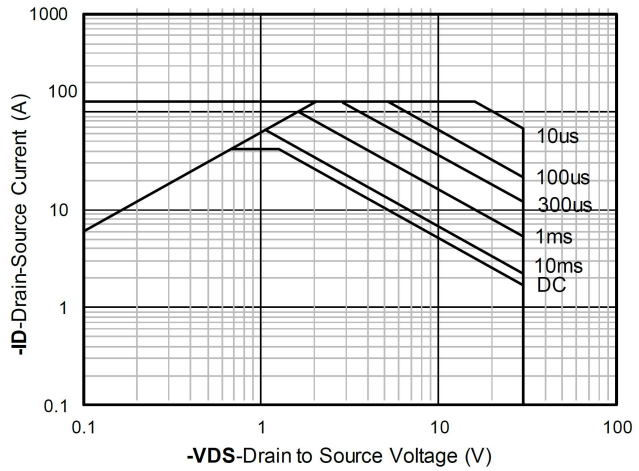
Normalized breakdown voltage



Normalized Threshold voltage



Maximum Transient Thermal Impedance

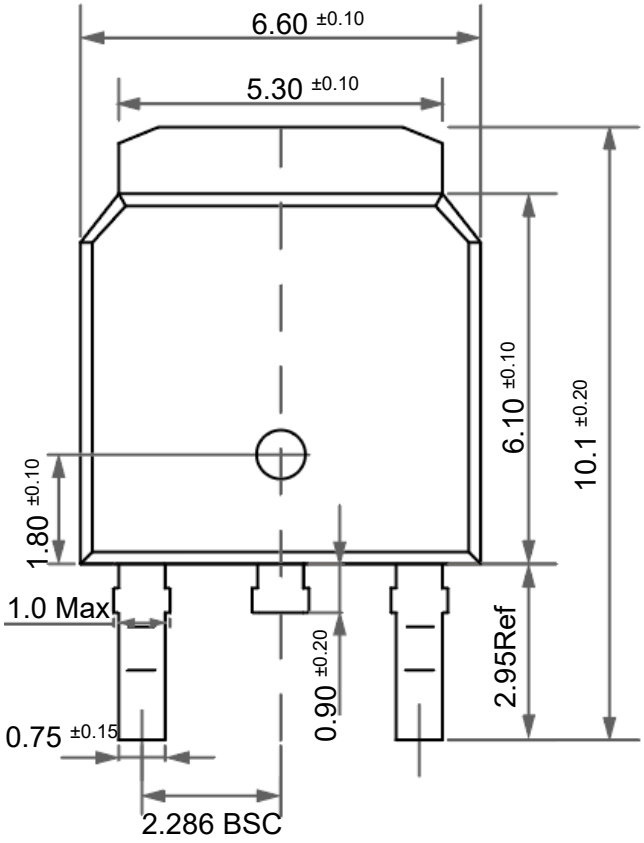


Safe Operation Area

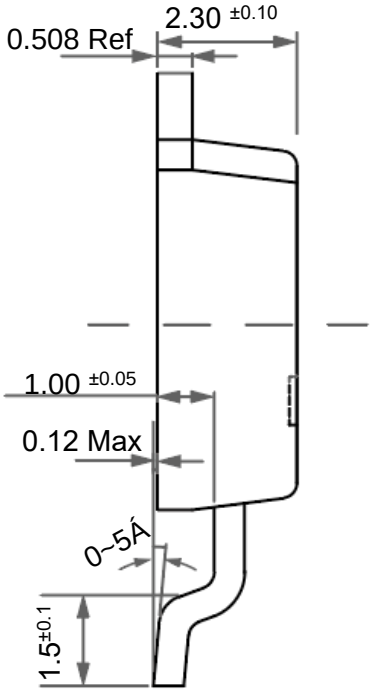
Package Outline

TO-252

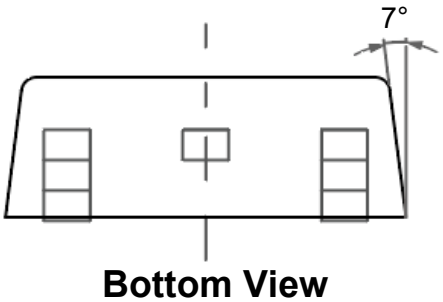
Dimensions in mm



Front View



Side View



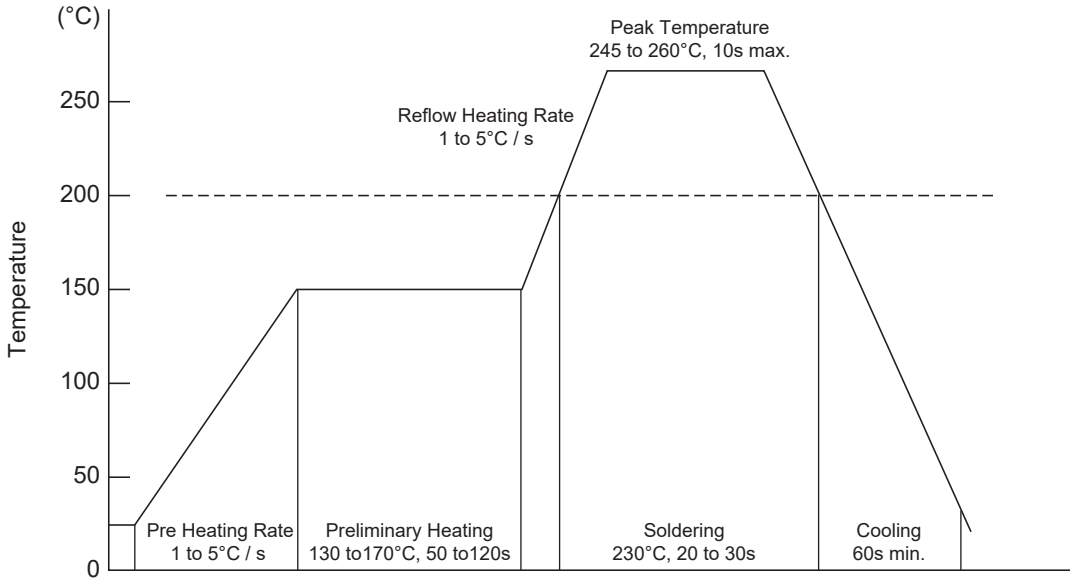
Bottom View

Ordering Information

Device	Package	Shipping
TN30P30TE	TO-252	2,500PCS/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

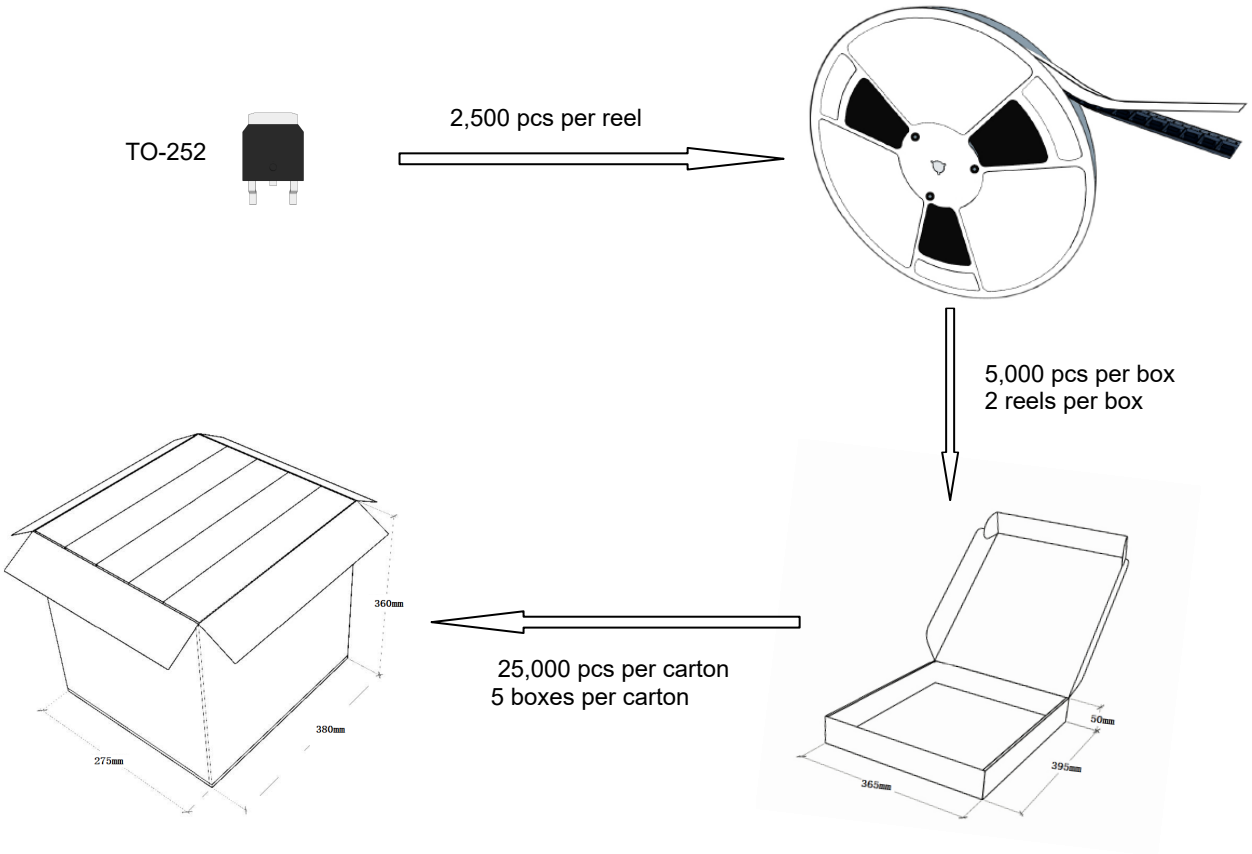
- Temperature: 300°C
- Time: 3s max.
- Times: one time

◆ Storage conditions

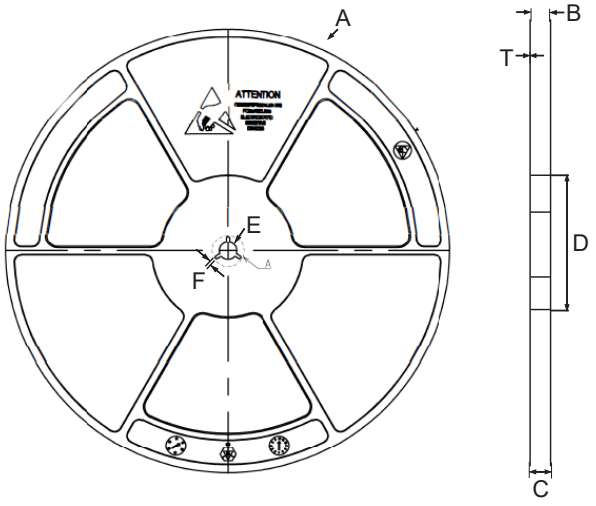
- **Temperature**
  5 to 40°C
- **Humidity**
  30 to 80% RH
- **Recommended period**
  One year after manufacturing

Package Specifications

- The method of packaging



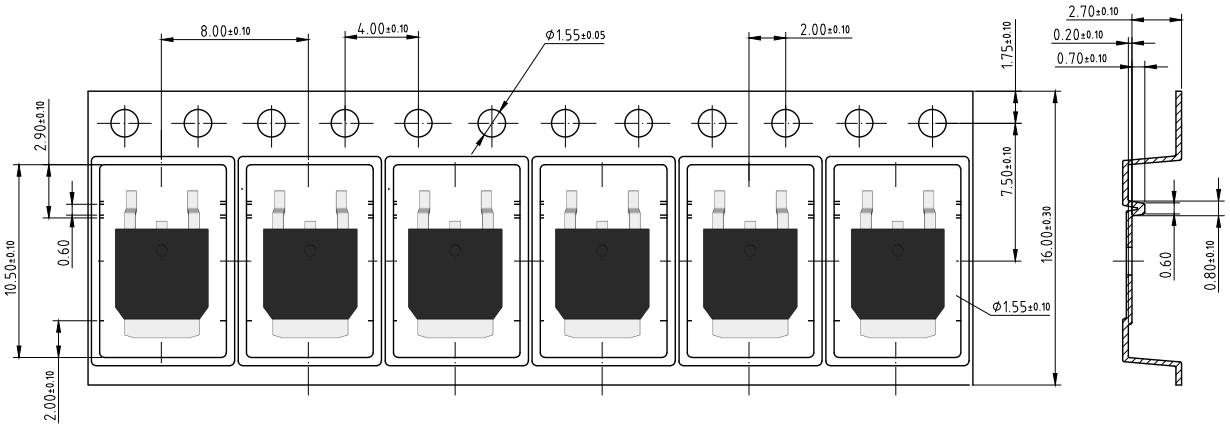
◆ **reel data**



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

◆ Embossed tape data



Contact Information

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

For additional information, please contact your local Sales Representative.

