

TN65H07NTF

N-Channel Enhancement Mode Power MOSFET TO-220F

Product Summary

- $V_{DS} = 650V, I_D = 07A$
- $R_{DS(on)} < 1.5\Omega @ V_{GS} = 10V$

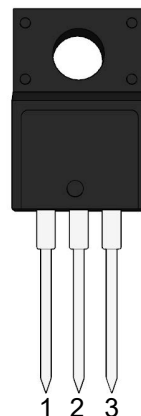
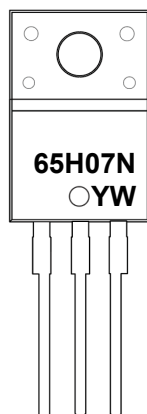
Features

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

Application

- Electronic Ballast
- Electronic Transformer
- Switch Mode Power Supply

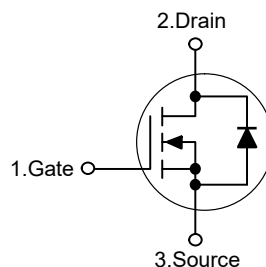
Marking Code



(Top View)

Pin	Description
1	Gate
2	Drain
3	Source

Schematic Diagram



Absolute Maximum Ratings

Ratings at 25°C case temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	650	V
Gate-Source Voltage	V_{GS}	± 30	V
Drain Current-Continuous	I_D	07	A
Drain Current-Pulsed ^{Note1}	I_{DM}	288	A
Maximum Power Dissipation	P_D	35	W
Single Pulse Avalanche Energy ^{Note2}	E_{AS}	350	mJ
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Thermal Characteristics

Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	3.57	°C/W
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Electrical Characteristics

(T_J=25°C unless otherwise specified)

OFF Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
V _{DSS}	Drain to Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	650	--	--	V
ΔBV _{DSS} /ΔT _J	Bvdss Temperature Coefficient	ID=250uA,Reference25℃	--	0.7	--	V/℃
I _{DSS}	Drain to Source Leakage Current	V _{DS} =650V, V _{GS} = 0V, T _a = 25℃	--	--	1	μA
		V _{DS} =520V, V _{GS} = 0V, T _a = 125℃	--	--	100	μA
I _{GSS(F)}	Gate to Source Forward Leakage	V _{GS} =+30V	--	--	100	nA
I _{GSS(R)}	Gate to Source Reverse Leakage	V _{GS} =-30V	--	--	-100	nA
ON Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
R _{DS(ON)}	Drain-to-Source On-Resistance	V _{GS} =10V,I _D =3.5A	--	1.2	1.4	Ω
V _{GS(TH)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250μA	2.0	--	4.0	V
Pulse width tp≤300μs,δ≤2%						
Dynamic Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
g _{fs}	Forward Transconductance	V _{DS} =15V, I _D =3.5A	--	6.5	--	S
C _{iss}	Input Capacitance	V _{GS} = 0V V _{DS} = 25V f = 1.0MHz	--	1130	--	pF
C _{oss}	Output Capacitance		--	93	--	
C _{rss}	Reverse Transfer Capacitance		--	5.5	--	
Resistive Switching Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
t _{d(ON)}	Turn-on Delay Time	I _D =7A V _{DD} = 325V R _G =10Ω	--	19	--	ns
t _r	Rise Time		--	21	--	
t _{d(OFF)}	Turn-Off Delay Time		--	42	--	
t _f	Fall Time		--	19	--	
Q _g	Total Gate Charge	I _D =7A V _{DD} =520V V _{GS} = 10V	--	24	--	nC
Q _{gs}	Gate to Source Charge		--	5.1	--	
Q _{gd}	Gate to Drain ("Miller")Charge		--	9.5	--	
Source-Drain Diode Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
I _S	Continuous Source Current (Body Diode)		--	--	7	A
I _{SM}	Maximum Pulsed Current (Body Diode)		--	--	28	A
V _{SD}	Diode Forward Voltage	I _S =7A,V _{GS} =0V	--	--	1.5	V
t _{rr}	Reverse Recovery Time	I _S =7A,T _J = 25℃ dI _F /dt=100A/us, V _{GS} =0V	--	382	--	ns
Q _{rr}	Reverse Recovery Charge		--	1980	--	nC
I _{RRM}	Reverse Recovery Current		--	10.4	--	A
Pulse width tp≤300μs,δ≤2%						

Typical Characteristic Curves

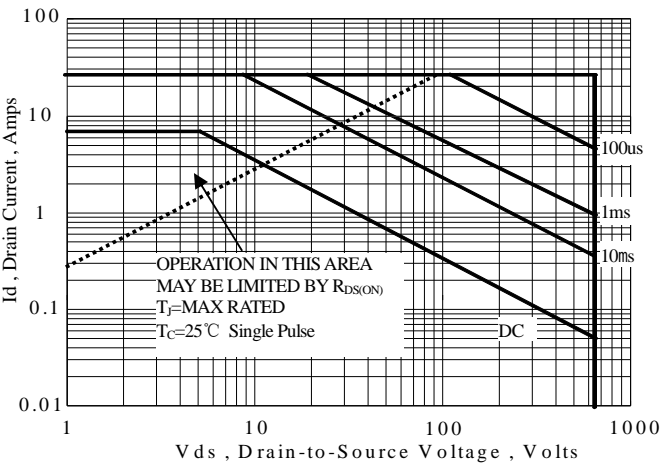


Figure 1 Maximum Forward Bias Safe Operating Area

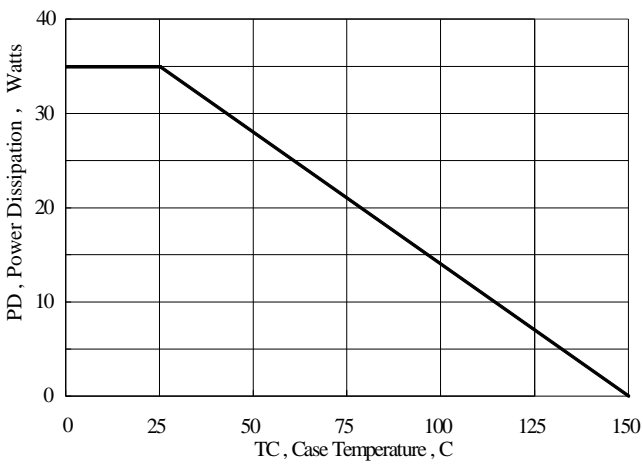


Figure 2 Maximum Power Dissipation vs Case Temperature

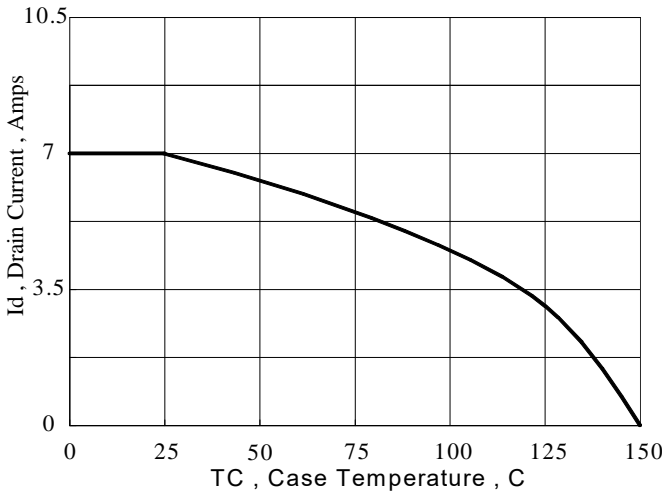


Figure 3 Maximum Continuous Drain Current vs Case Temperature

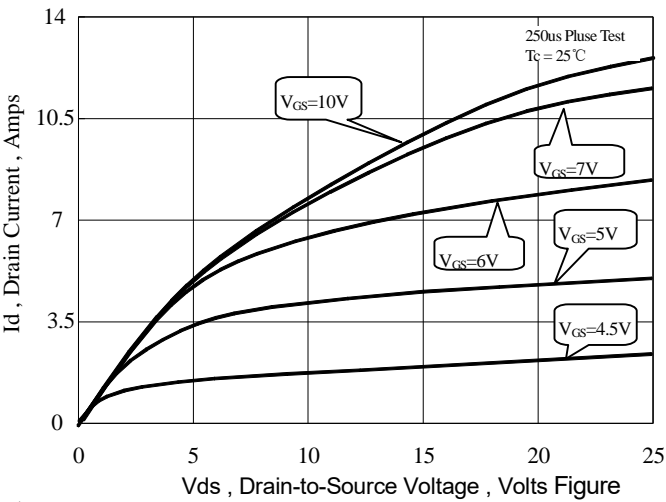


Figure 4 Typical Output Characteristics

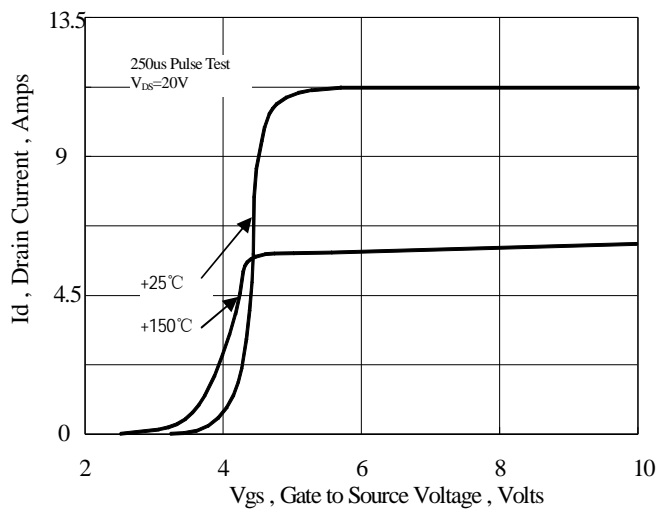


Figure 6 Typical Transfer Characteristics

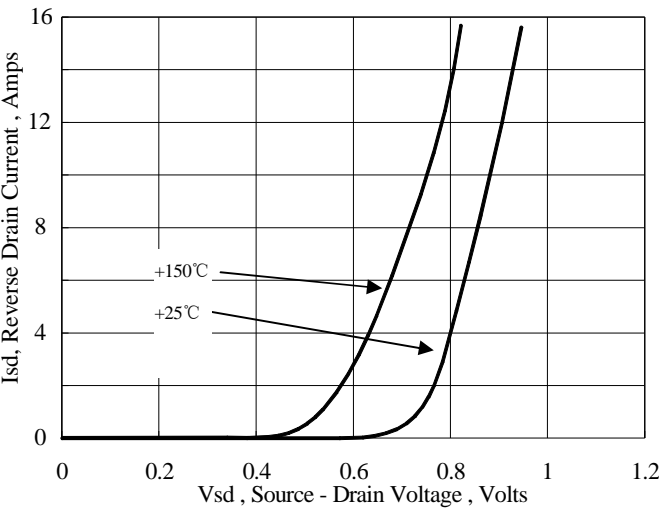


Figure 7 Typical Body Diode Transfer Characteristics

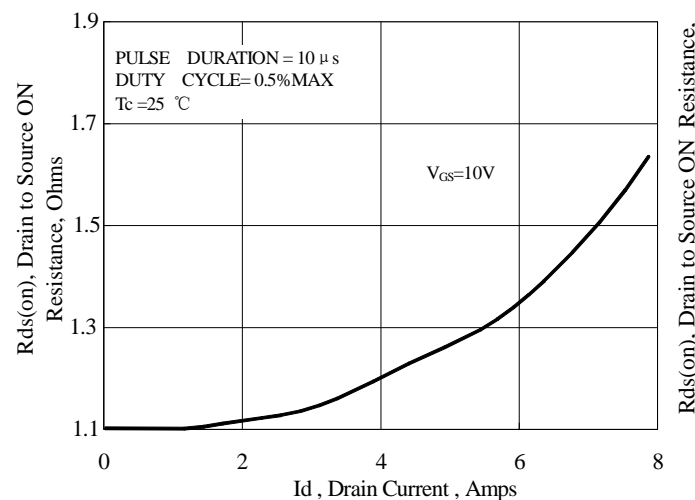


Figure 8 Typical Drain to Source ON Resistance vs Drain Current

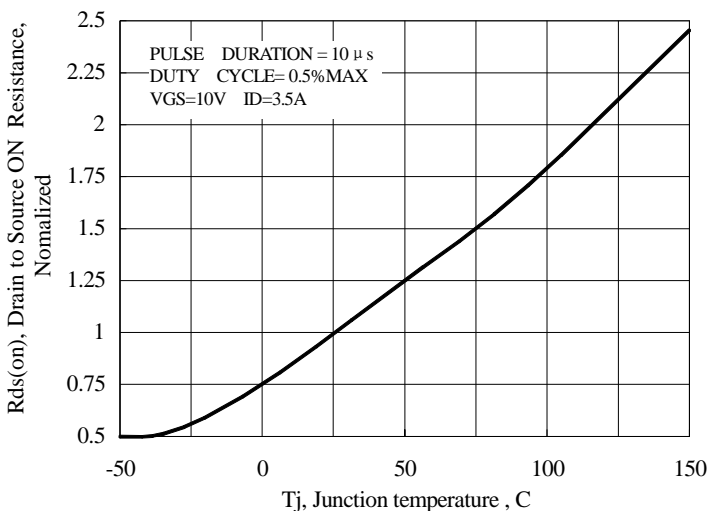


Figure 9 Typical Drian to Source on Resistance vs Junction Temperature

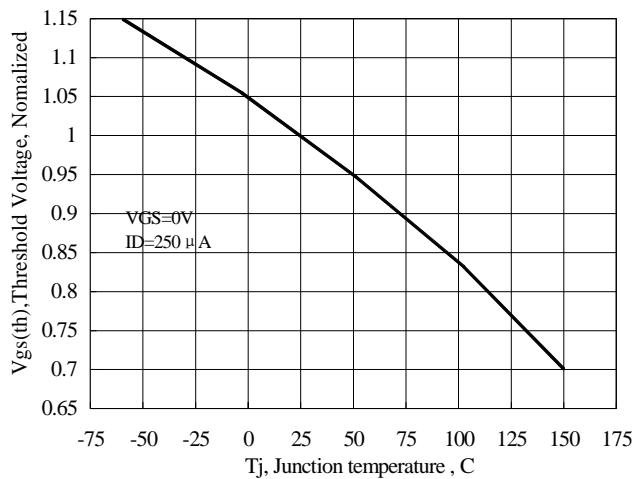


Figure 10 Typical Theshold Voltage vs Junction Temperature

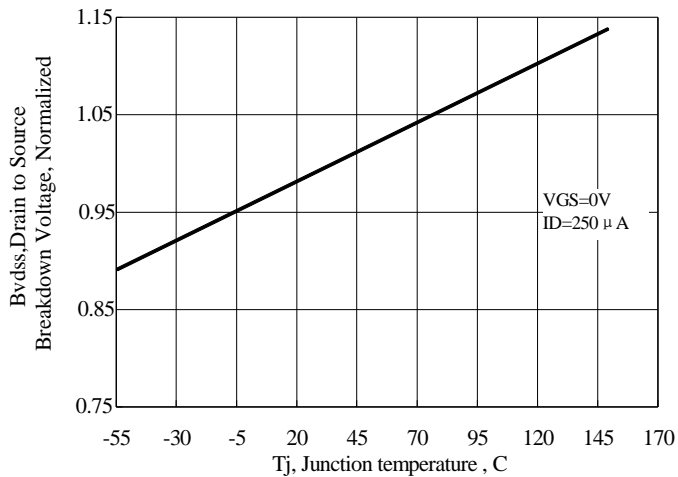


Figure 11 Typical Breakdown Voltage vs Junction Temperature

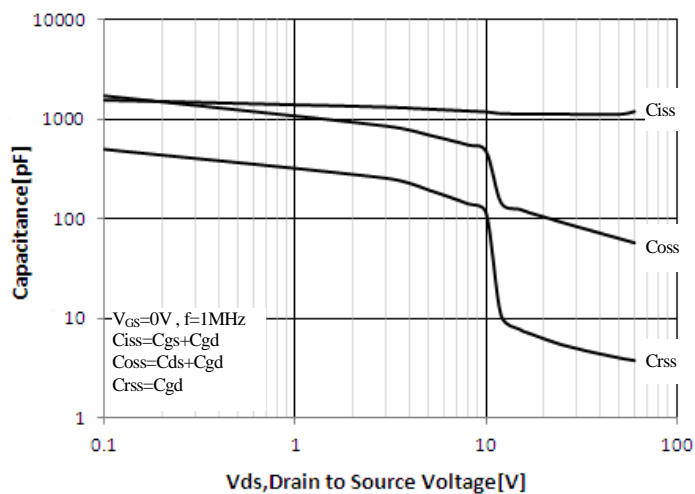


Figure 12 Typical Capacitance vs Drain to Source Voltage

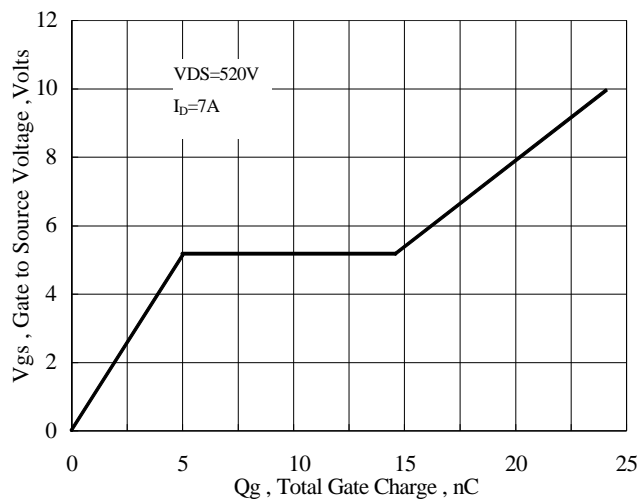
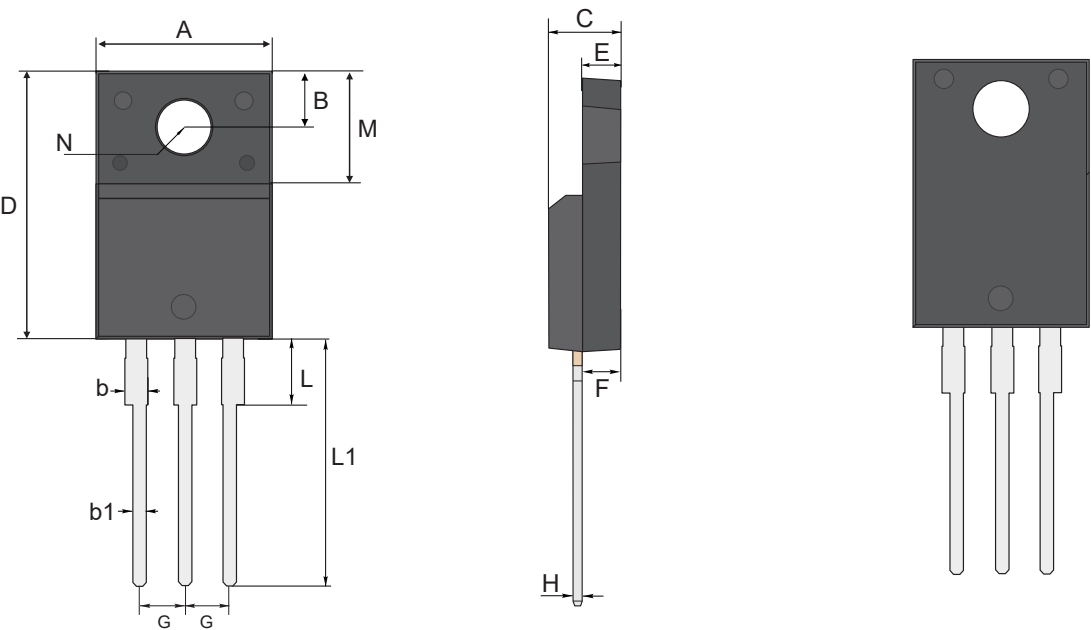


Figure 13 Typical Gate Charge vs Gate to Source Voltage

Package Outline

TO-220F

Dimensions in mm



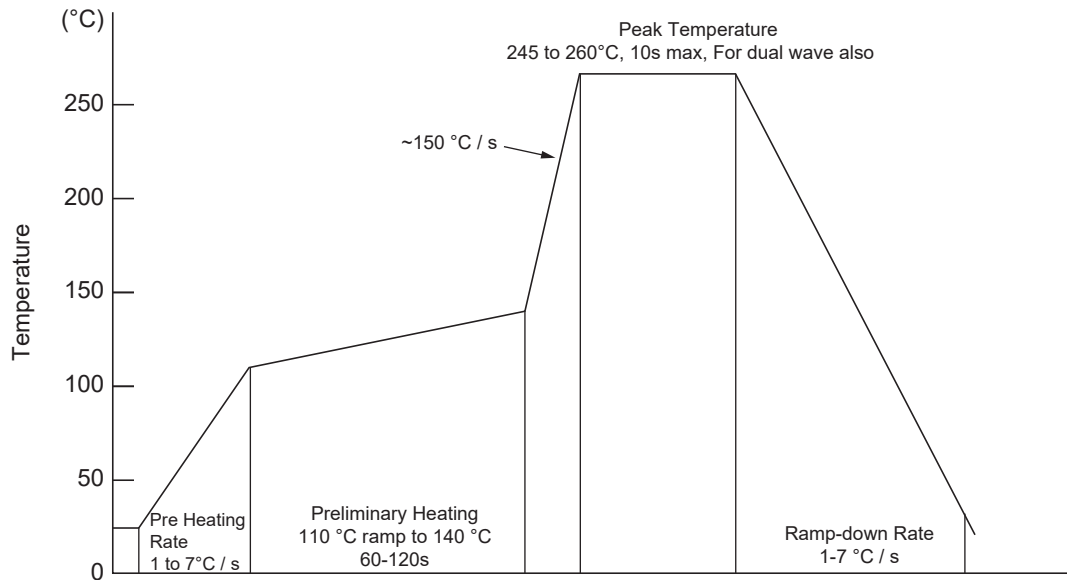
UNIT		A	B	b	b1	C	D	E	F	G	H	L	L1	M	N
mm	max	10.28	3.37	1.44	0.9	4.9	16.07	2.74	2.74	2.64	0.6	2.85	13.7	6.88	3.18 typ.
	typ	10.18	3.27	1.34	0.8	4.7	15.87	2.54	2.54	2.54	0.5	2.65	13.5	6.68	
	min	10.08	3.17	1.24	0.7	4.5	15.67	2.34	2.34	2.44	0.4	2.45	13.3	6.48	
mil	max	405	133	57	35	193	633	108	108	104	24	112	539	271	125 typ.
	typ	401	129	53	31	185	625	100	100	100	20	104	531	263	
	min	397	125	49	28	177	617	92	92	96	16	96	524	255	

Ordering Information

Device	Package	Shipping
TN65H07NTF	TO-220F	50PCS/Tube

Conditions of Soldering and Storage

◆ Wave Soldering



◆ Conditions of hand soldering

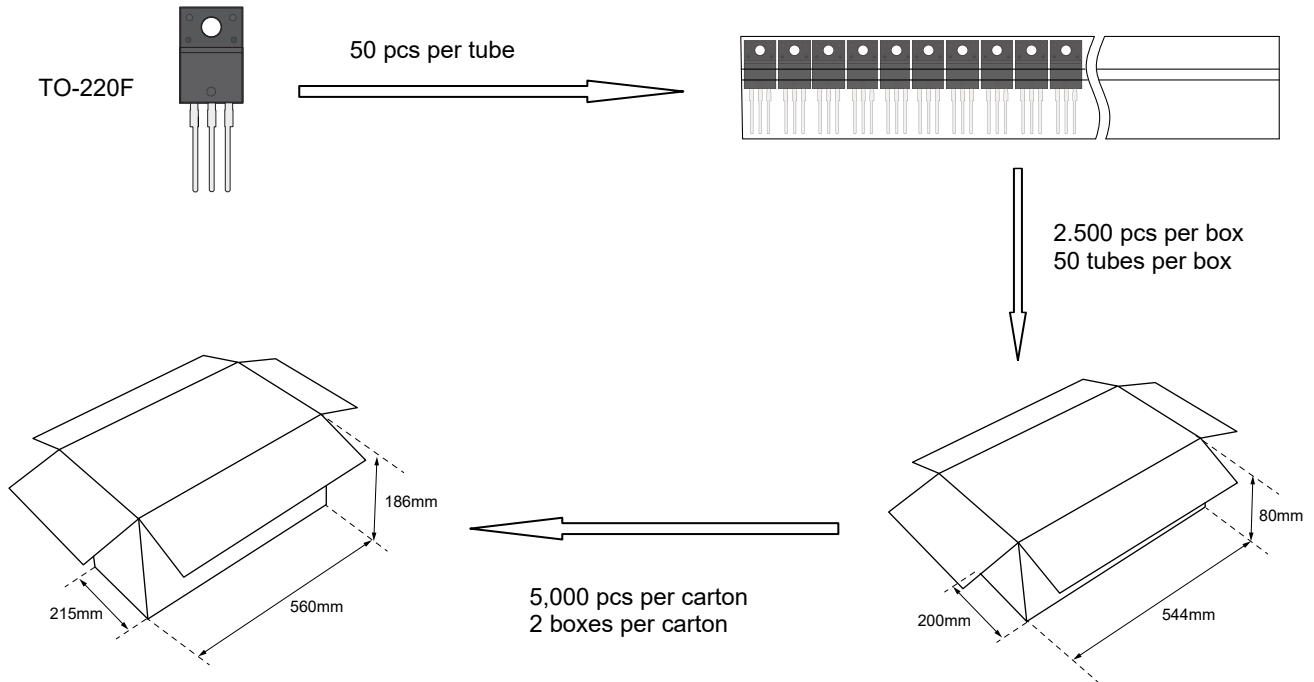
- Temperature: 360°C
- Time: 3s max.
- Times: one time

◆ Storage conditions

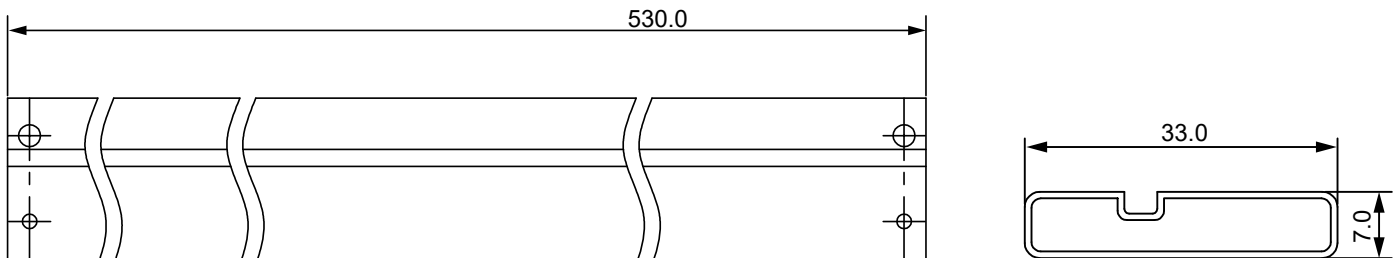
- **Temperature**
5 to 40°C
- **Humidity**
30 to 80% RH
- **Recommended period**
One year after manufacturing

Package Specifications

- The method of packaging



◆ Tube data



Contact Information

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For additional information, please contact your local Sales Representative.



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Product Specification Statement

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