



PJM90H09NTF

N-Channel MOSFET

Feature

- Fast switching capability
- $R_{DS(on)}=1.4\Omega @ V_{GS}=10V$
- Ultra low gate charge
- Low reverse transfer capacitance
- Avalanche energy specified

PJM90H09NTF Explanation

PJ: Brand of abbreviation

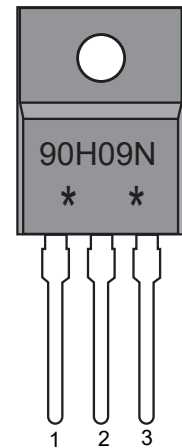
M: MOSFET

90H09: Product type

N: Channel type

TF: Package type

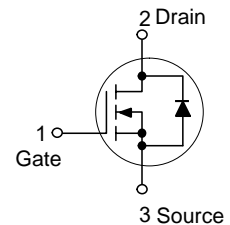
TO-220F



Marking

90H09N: Product Type

* * : Date of Manufacture



Absolute Maximum Ratings

($T_C=25^\circ\text{C}$ unless otherwise stated)

Parameter	Symbol	Value	Units
Drain-Source Voltage	V_{DSS}	900	V
Gate-Source Voltage	V_{GSS}	± 30	V
Continuous Drain Current	I_D	9	A
Pulsed Drain Current	I_{DM}	36	A
Avalanche Energy (Single Pulsed) (Note 1)	E_{AS}	823	mJ
Power Dissipation	P_D	68	W
Junction and Storage Temperature Range	T_J, T_{STG}	150, -55 to 150	$^\circ\text{C}$
Thermal Characteristics			
Parameter	Symbol	Typ.	Units
Maximum Junction-to-Ambient	$R_{\theta JA}$	120	$^\circ\text{C/W}$
Maximum Junction-to-Case	$R_{\theta JC}$	1.84	$^\circ\text{C/W}$



Electrical Characteristics (T_J = 25°C, unless otherwise noted)

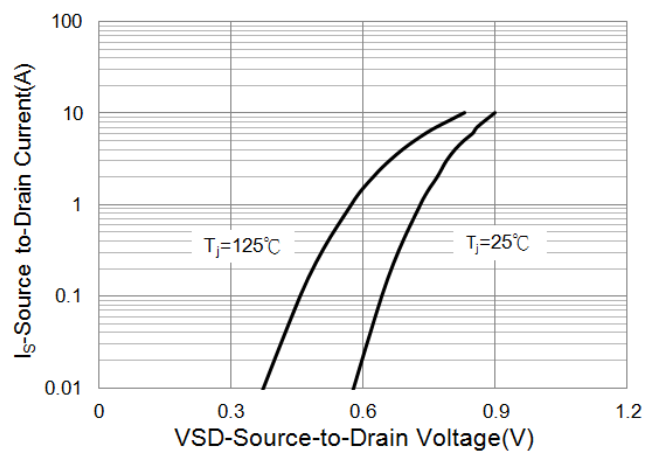
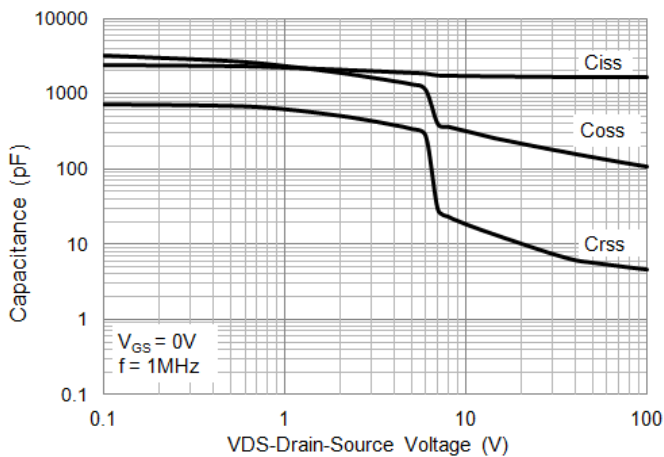
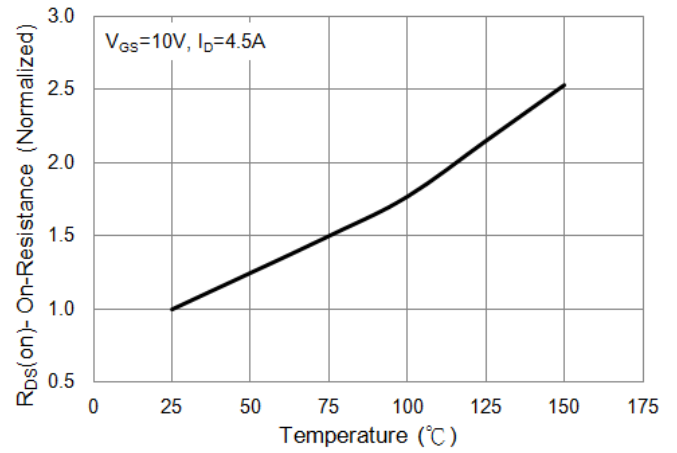
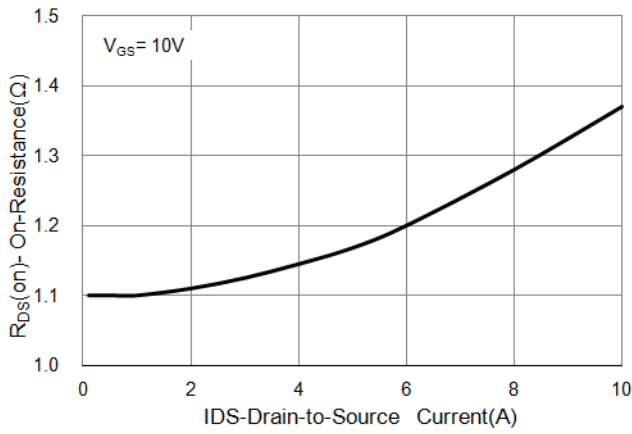
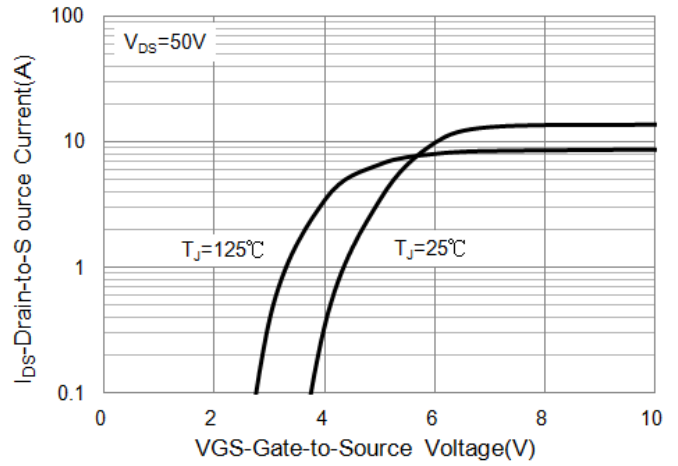
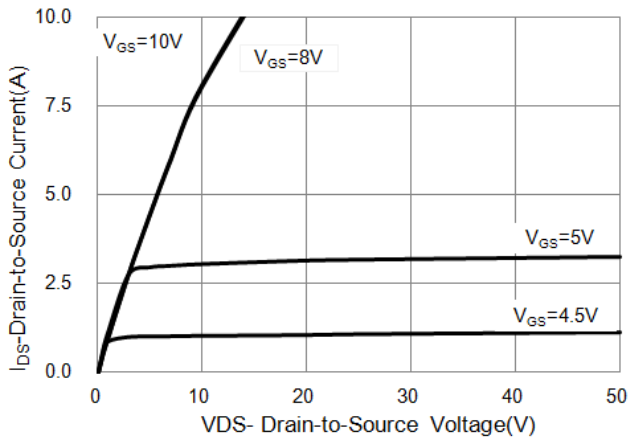
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Static Parameters						
Drain-Source Breakdown Voltage	BV _{DSS}	I _D =250μA, V _{GS} =0V	900	--	--	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =900V, V _{GS} =0V	--	--	1	μA
Gate-Body Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±30V	--	--	±100	nA
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2	--	4	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =4.5A	--	--	1.4	Ω
Body Diode Forward Voltage	V _{SD}	I _S =9A, V _{GS} =0V	--	--	1.4	V
Dynamic Parameters						
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =25V, f=1MHz	--	1634	--	pF
Output Capacitance	C _{oss}		--	143	--	pF
Reverse Transfer Capacitance	C _{rss}		--	7.1	--	pF
Switching Parameters (Note 2,3)						
Total Gate Charge	Q _g	V _{GS} =10V, V _{DS} =720V, I _D =9A	--	31	--	nC
Gate Source Charge	Q _{gs}		--	8	--	nC
Gate Drain Charge	Q _{gd}		--	12	--	nC
Turn-On DelayTime	t _{D(on)}	V _{DD} =450V, I _D =9A, R _G =25Ω	--	22	--	ns
Turn-On Rise Time	t _r		--	31	--	ns
Turn-Off DelayTime	t _{D(off)}		--	56	--	ns
Turn-Off Fall Time	t _f		--	31	--	ns
Drain-Source Diode						
Maximum Continuous Drain-Source Diode Forward Current	I _S		--	--	9	A
Maximum Pulsed Drain-Source Diode Forward Current	I _{SM}		--	--	36	A

Note:

1. L = 30mH, I_{AS} = 7.1A, V_{DD} = 50V, R_G = 25Ω, Starting T_J = 25°C.
2. Pulse Test: Pulse width ≤ 300μs, duty cycle ≤ 2%.
3. Essentially independent of operating temperature.

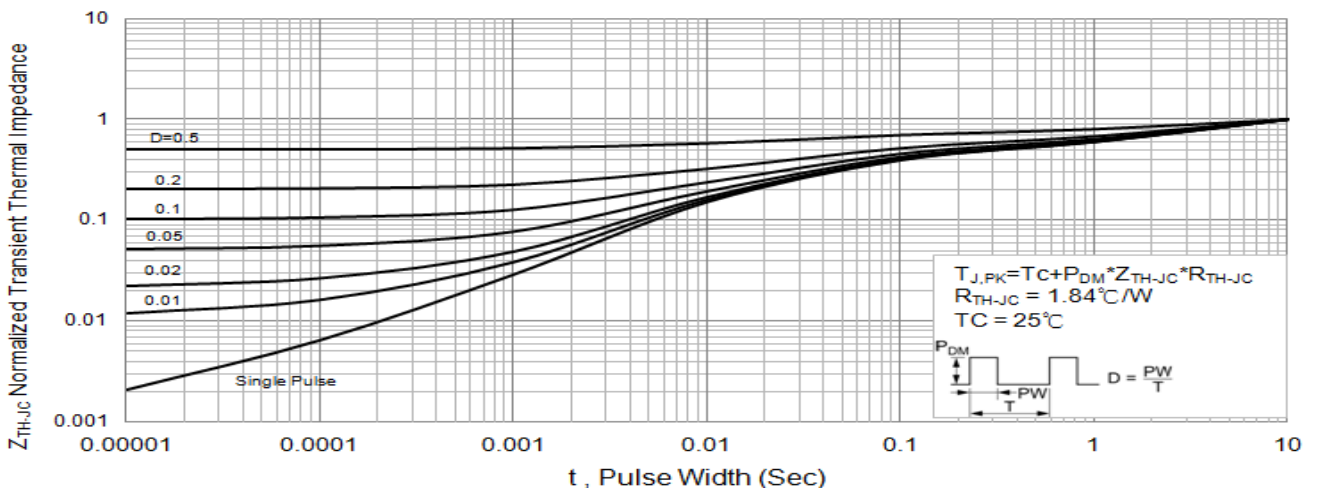
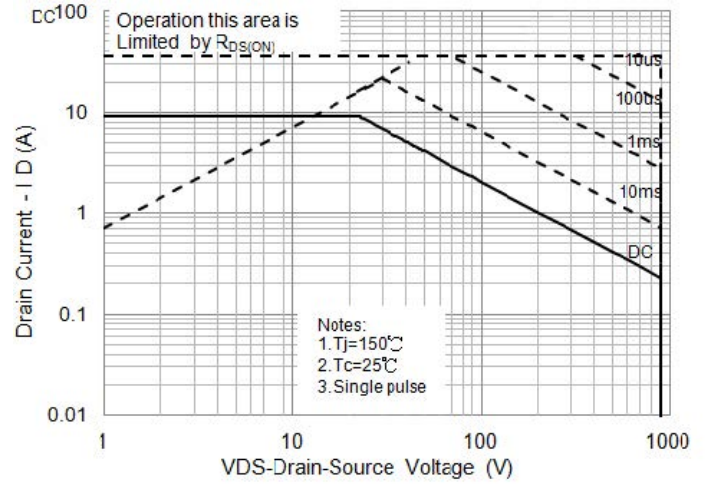
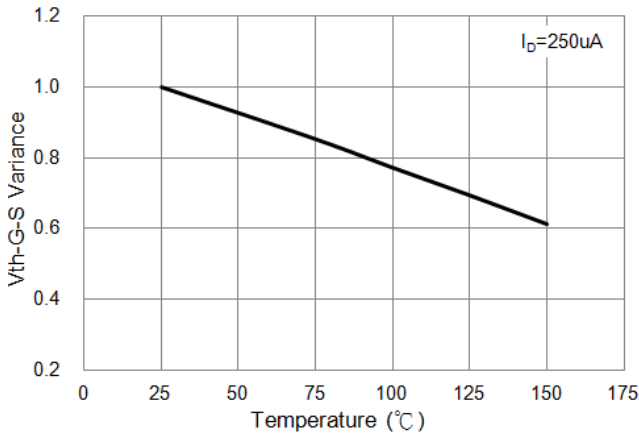
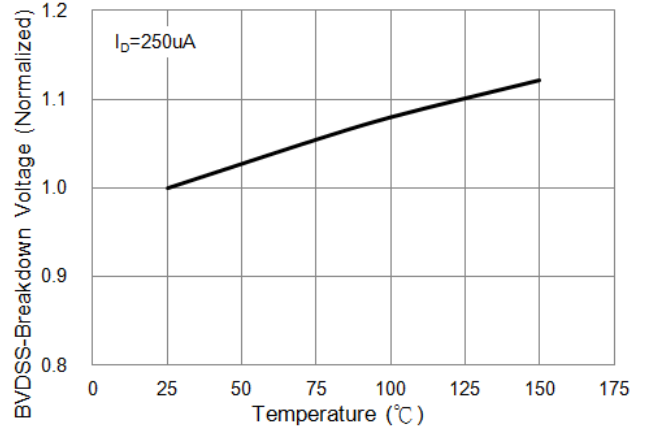
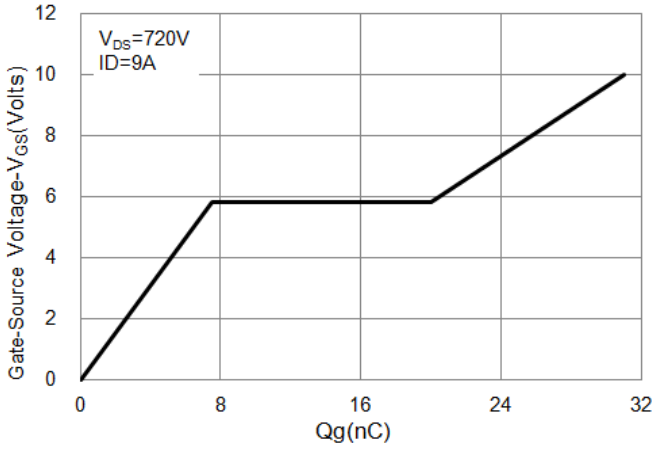


Electrical Characteristics Curves





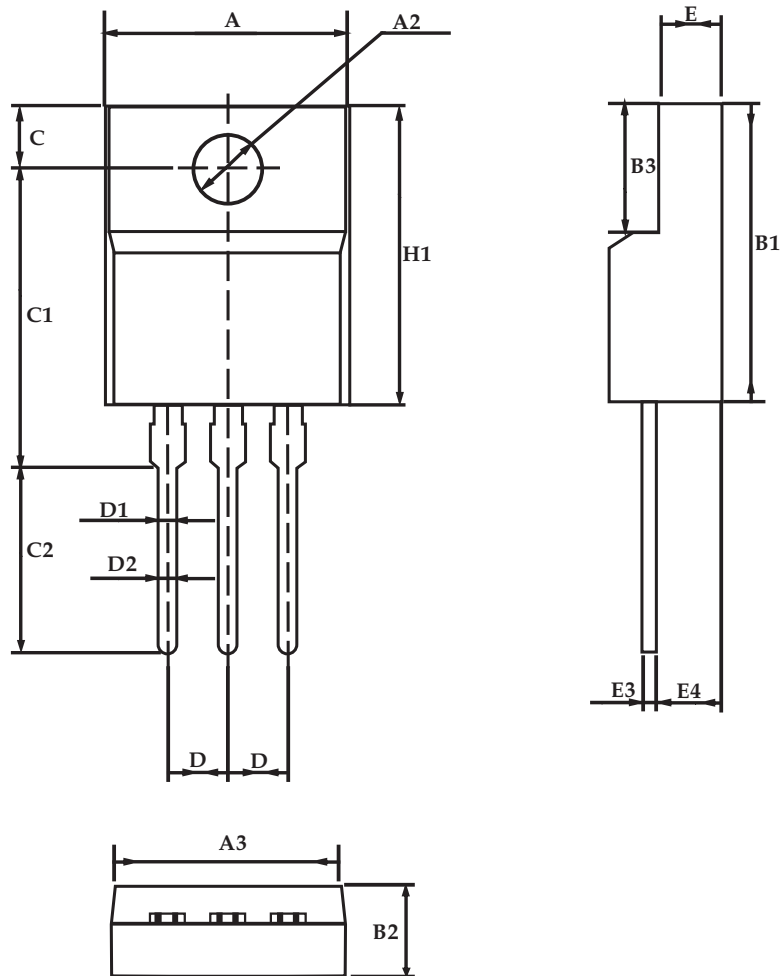
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Package Outline

TO-220F



UNIT : mm

SYMBOL	min	nom	max	SYMBOL	min	nom	max
A	9.80		10.60	D		2.54	
A1		7.00		D1	1.15		1.55
A2	2.90		3.40	D2	0.60		1.00
A3	9.10		9.90	D3	0.20		0.50
B1	15.40		16.40	E	2.24		2.84
B2	4.35		4.95	E1		0.70	
B3	6.00		7.40	E2		1.0 × 45°	
C	3.00		3.70	E3	0.35		0.65
C1	15.00		17.00	E4	2.30		3.30
C2	8.80		10.80	α (度)		30°	

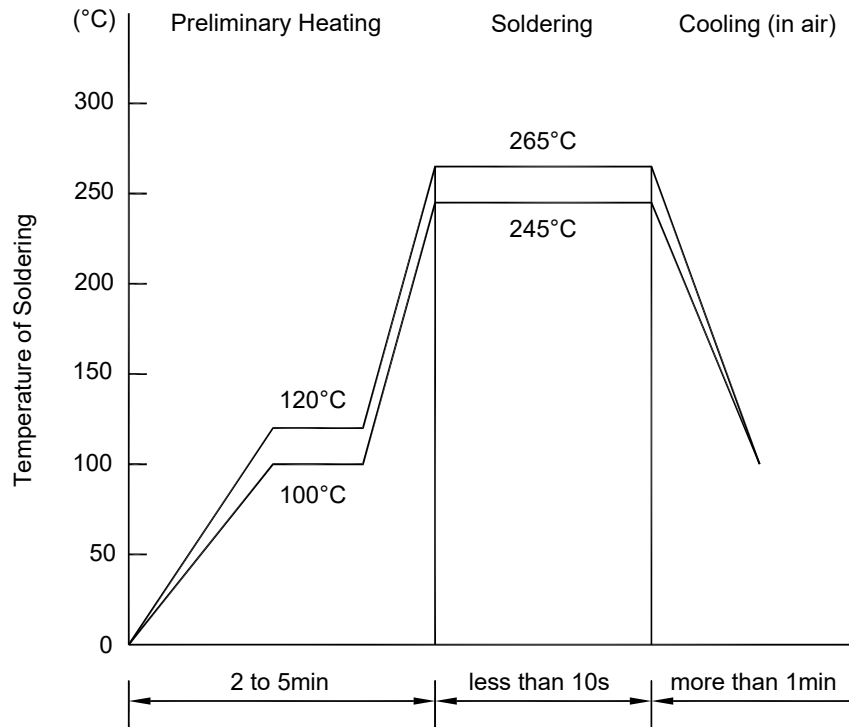
Ordering Information

Device	Package	Shipping
PJM90H09NTF	TO-220F	50 PCS/TUBE



Conditions of Soldering and Storage

- Recommended condition of flow soldering



Condition of hand soldering

Temperature: 370 °C

Time: 3s max.

Times: one time

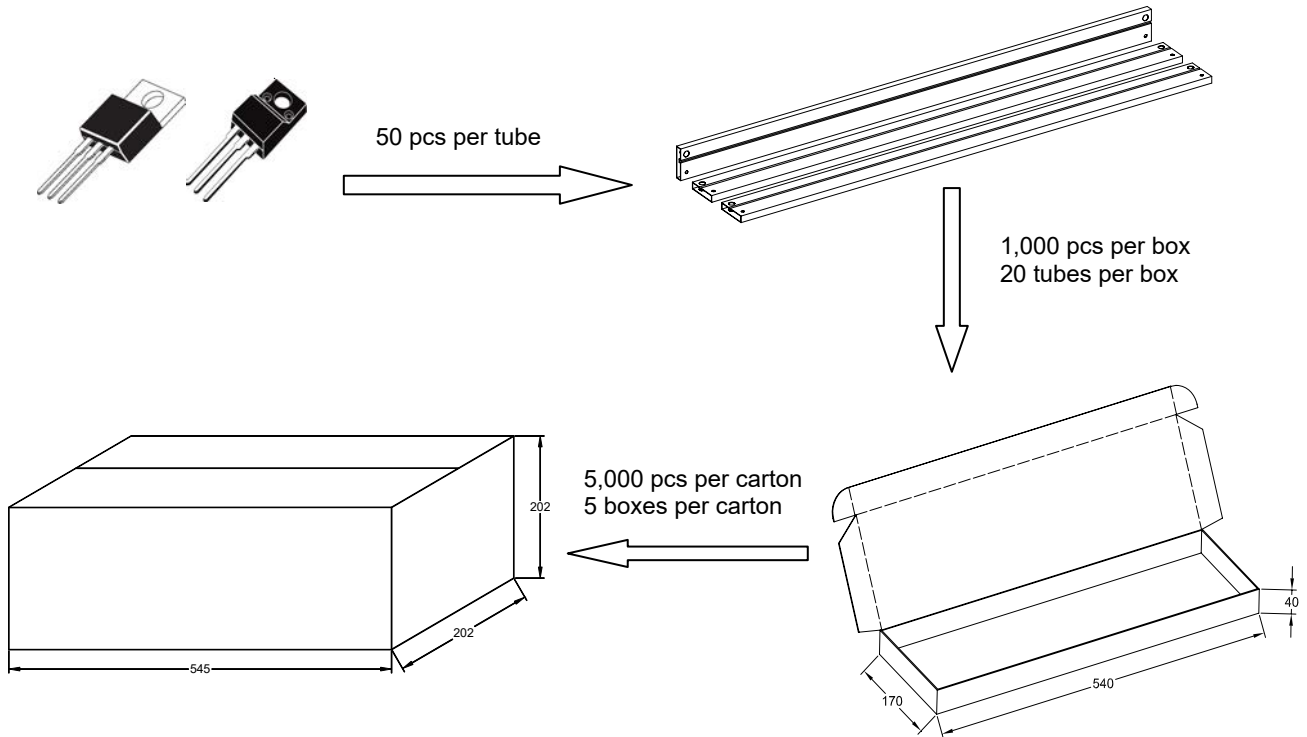
MSL:1 Level



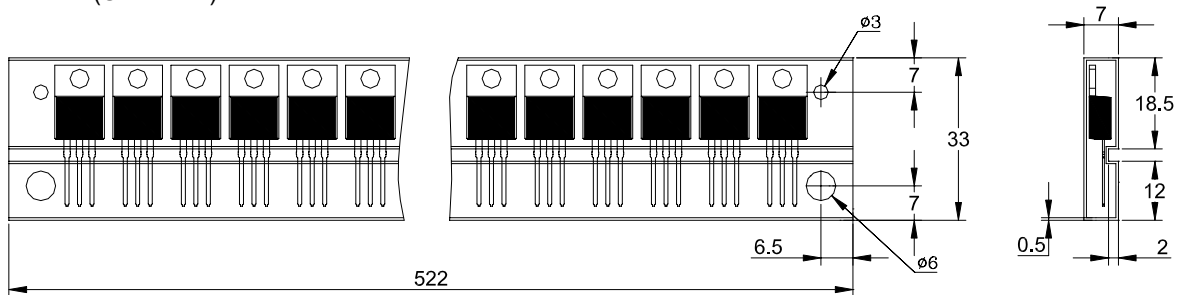
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Packaging Specifications of Tube Pack for TO-220/TO-220F

1. The method of packaging and dimension are shown as below figure. (Dimension in mm)



2. Tube data (Units: mm)



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