PJM65H07NTF

Single N-Channel Power MOSFET

Features

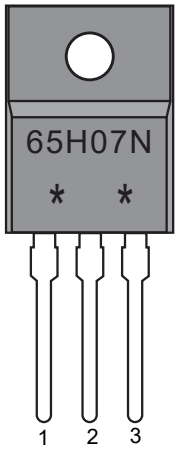
- Fast Switching
- Low ON Resistance
- Low Gate Charge
- Low Reverse transfer capacitances
- 100% Single Pulse avalanche energy Test
- V_{DSS}=650V

  I_D=7A

  P_D=40W

  $R_{DSON(TYP)}$=0.95Ω
- ESD Improved Capability HBM 2KV

TO-220F



Marking

65H07: Product Type

* * : Date of Manufacture

Applications

- Power switch circuit of adaptor and charger

PJM65H07NTF Explanation

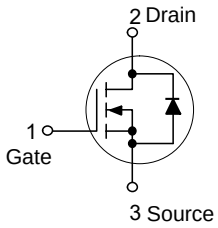
PJ: Brand of abbreviation

M: MOSFET

65H07: Product type

N: Channel type

TF: Package type



Absolute Maximum Ratings (T_C=25℃ unless otherwise stated)

Symbol	Parameter	Rating	Units
V_{DSS}	Drain-to-Source Voltage	650	V
I_D	Continuous Drain Current	7	A
	Continuous Drain Current T_C=100°C	4.5	A
I_{DM}[a1]	Pulsed Drain Current	28	A
V_{GS}	Gate-to-Source Voltage	±30	V
E_{AS}[a2]	Single Pulse Avalanche Energy	450	mJ
E_{Ar}[a1]	Avalanche Energy, Repetitive	54	mJ
I_{AR}[a1]	Avalanche Current	3.3	A
dv/dt[a3]	Peak Diode Recovery dv/dt	5.0	V/ns
P_D	Power Dissipation	40	W
	Derating Factor above 25°C	0.32	W/℃
T_J, T_{STG}	Operating Junction and Storage Temperature Range	150 , –55 to 150	℃
T_L	Maximum Temperature for Soldering	300	℃

Caution Stresses greater than those in the “Absolute Maximum Ratings” may cause permanent damage to the device

a1 : Repetitive rating; pulse width limited by maximum junction temperature

a2 : L=10 mH, I_D= 9.5A, Start T_J=25℃

a3 : I_{SD}=7A,di/dt≤100A/us,V_{DD}≤BV_{DS}, Start T_J=25℃

Thermal Characteristics

Symbol	Parameter	Rating	Units
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	3.13	℃/ W
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	100	℃/ W

Electrical Characteristics (T_J=25℃ unless otherwise specified)

Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
Off Characteristics						
V_{DSS}	Drain to Source Breakdown Voltage	V_{GS}=0V, I_D=250μA	650	--	--	V
$\Delta BV_{DSS}/\Delta T_J$	Bvdss Temperature Coefficient	I_D=250uA, Reference 25℃	--	0.67	--	V/℃
I_{DSS}	Drain to Source Leakage Current	V_{DS}=650V, V_{GS}=0V, T_a=25℃	--	--	1.0	μA
		V_{DS}=520V, V_{GS}=0V, T_a=125℃	--	--	100	
$I_{GSS(F)}$	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						
$R_{DS(ON)}$	Drain-to-Source On-Resistance	V_{GS}=10V, I_D=3.5A	--	0.95	1.15	Ω
$V_{GS(TH)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	2.0	--	4.0	V
g_{fs}	Forward Trans conductance	V_{DS}=15V, I_D=3.5A	--	6.5	--	S
Pulse width<380μs;duty cycle<2%.						
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{GS}=0V,V_{DS}=25V,f=1.0MHz	--	1080	--	pF
C_{oss}	Output Capacitance		--	93	--	
C_{rss}	Reverse Transfer Capacitance		--	4.5	--	
Resistive Switching Characteristics						
$t_{d(ON)}$	Turn-on Delay Time	I_D=7A,V_{DD}=520V V_{GS}=10V,R_g=9.1Ω	--	11	--	ns
tr	Rise Time		--	10	--	
$t_{d(OFF)}$	Turn-Off Delay Time		--	36	--	
t_f	Fall Time		--	18	--	
Q_g	Total Gate Charge	I_D=7A,V_{DD}=520V V_{GS}=10V	--	24	--	nC
Q_{gs}	Gate to Source Charge		--	5	--	
Q_{gd}	Gate to Drain (“ Miller ”)Charge		--	8	--	
Source-Drain Diode Characteristics						
I_{SD}	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/μs,V_{GS}=0V	--	280	--	ns
Q_{rr}	Reverse Recovery Charge		--	1200	--	nC

Typical Characteristic Curves

Figure 1. Maximum Effective Thermal Impedance, Junction-to-Case

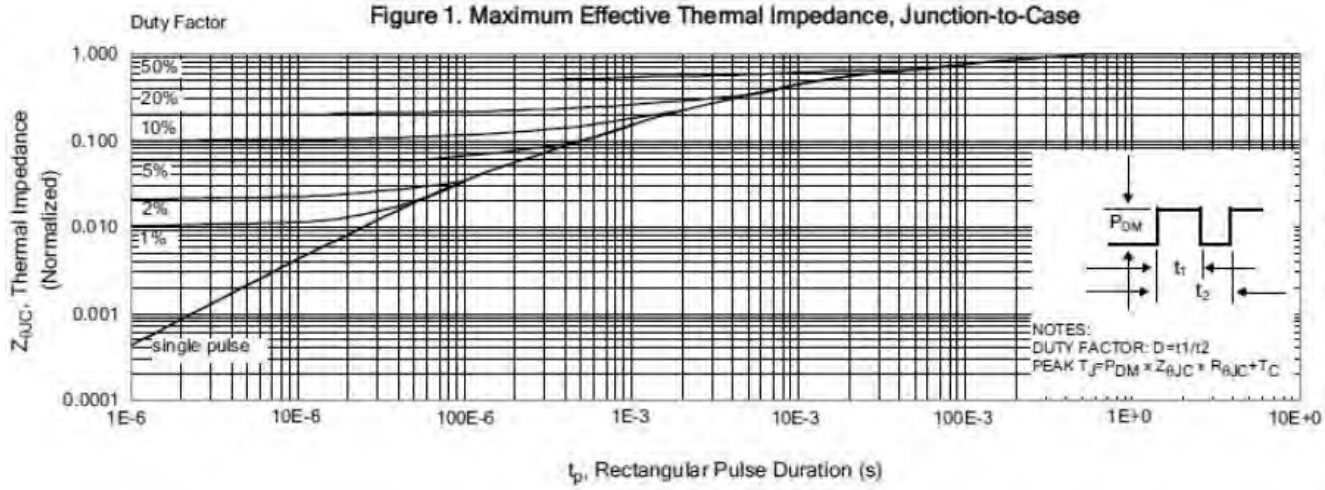


Figure 2. Maximum Power Dissipation vs Case Temperature

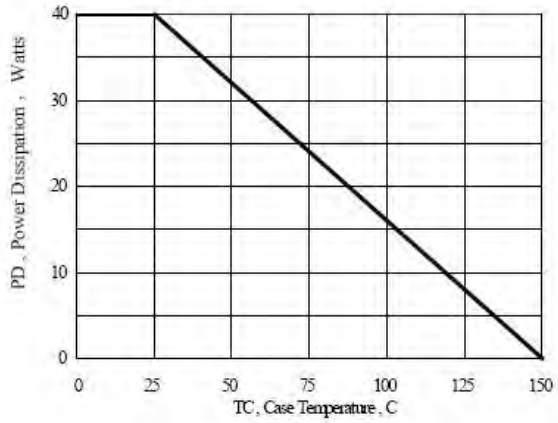


Figure 3. Maximum Continuous Drain Current vs Case Temperature

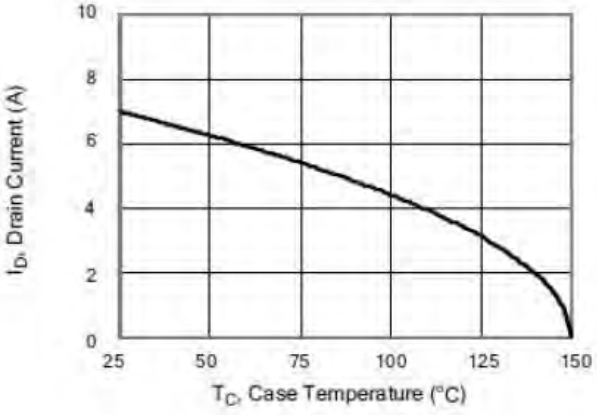


Figure 4. Typical Output Characteristics

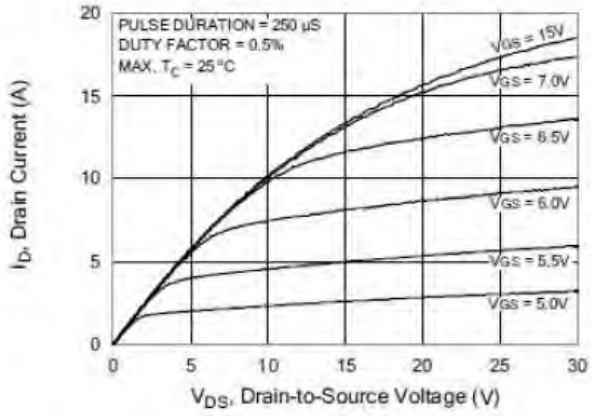


Figure 5. Typical Drain-to-Source ON Resistance vs Gate Voltage and Drain Current

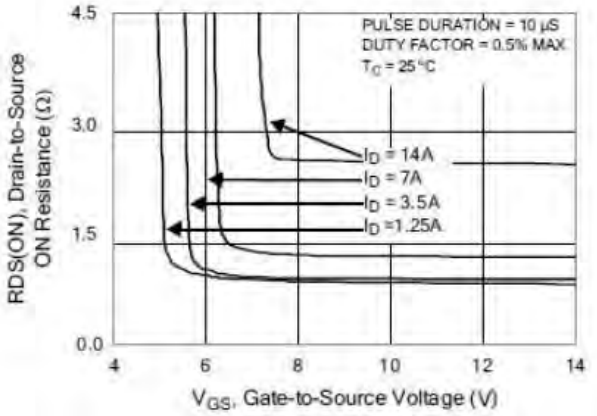


Figure 6. Maximum Peak Current Capability

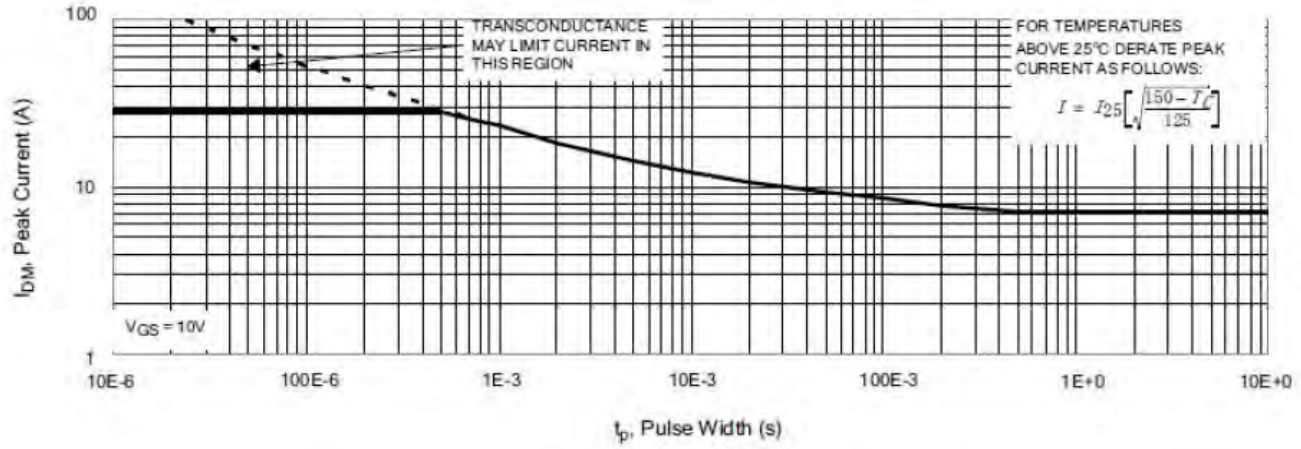


Figure 7. Typical Transfer Characteristics

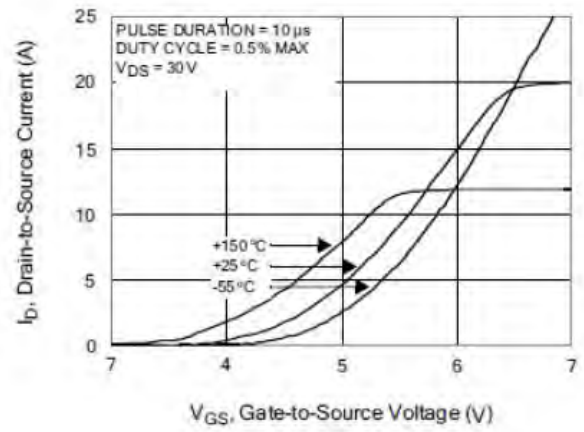


Figure 8. Unclamped Inductive Switching Capability

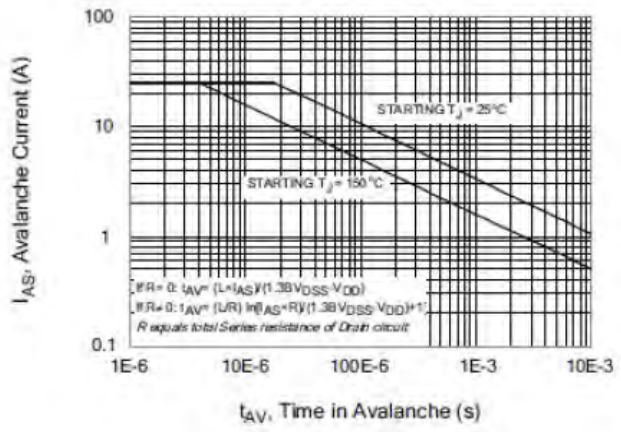


Figure 9. Typical Drain-to-Source ON Resistance vs Drain Current

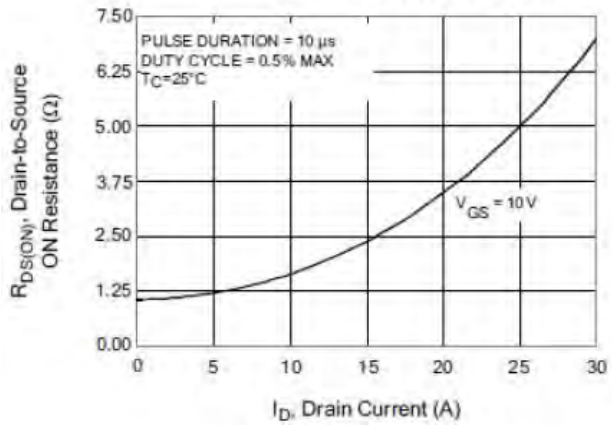


Figure 10. Typical Drain-to-Source ON Resistance vs Junction Temperature

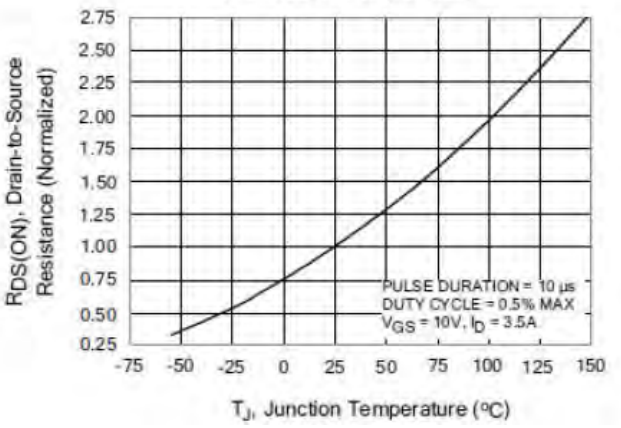


Figure 11. Typical Breakdown Voltage vs Junction Temperature

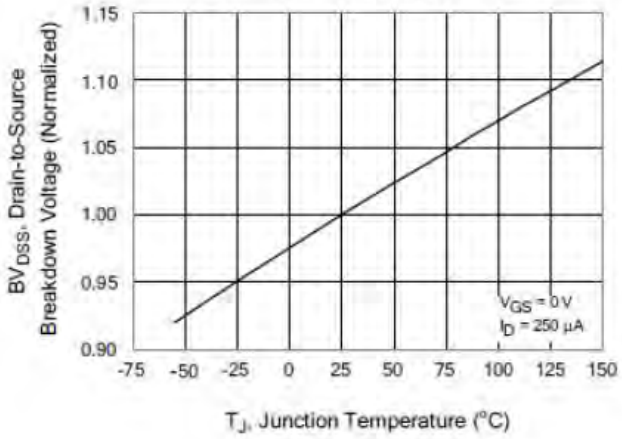


Figure 12. Typical Threshold Voltage vs Junction Temperature

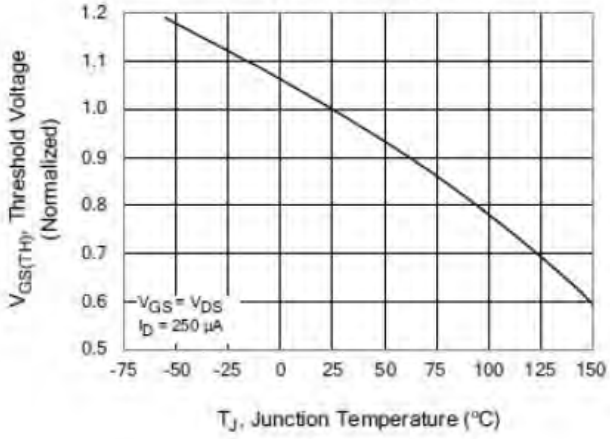


Figure 13. Maximum Forward Bias Safe Operating Area

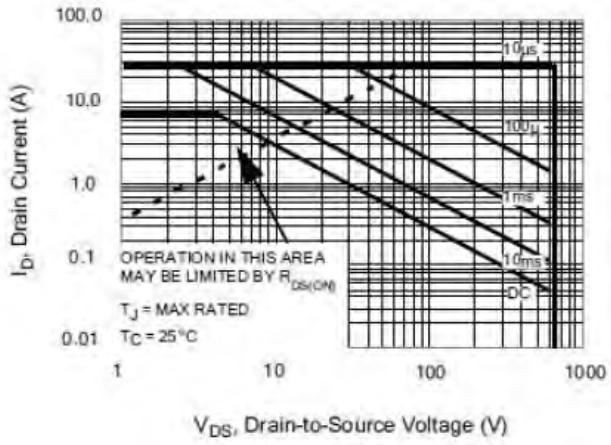


Figure 14. Typical Capacitance vs Drain-to-Source Voltage

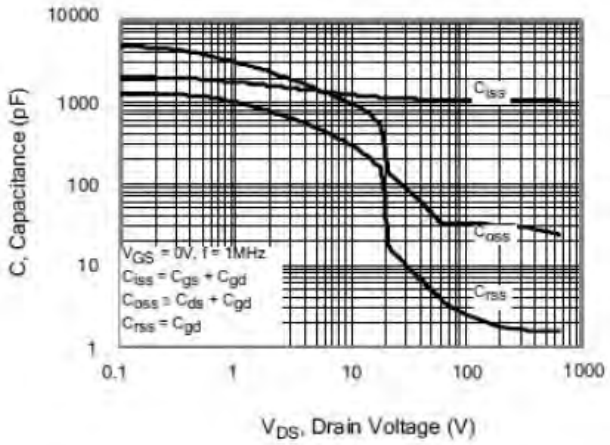


Figure 15. Typical Gate Charge vs Gate-to-Source Voltage

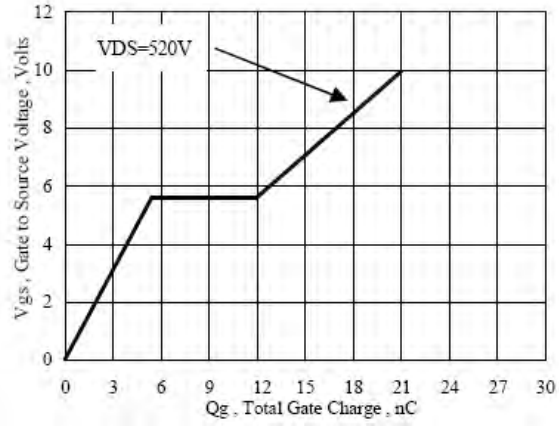
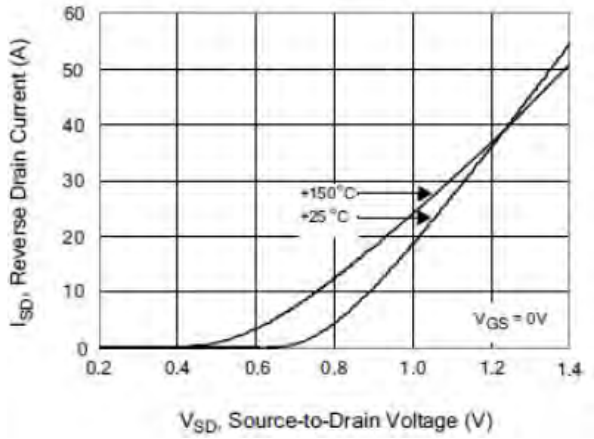


Figure 16. Typical Body Diode Transfer Characteristics

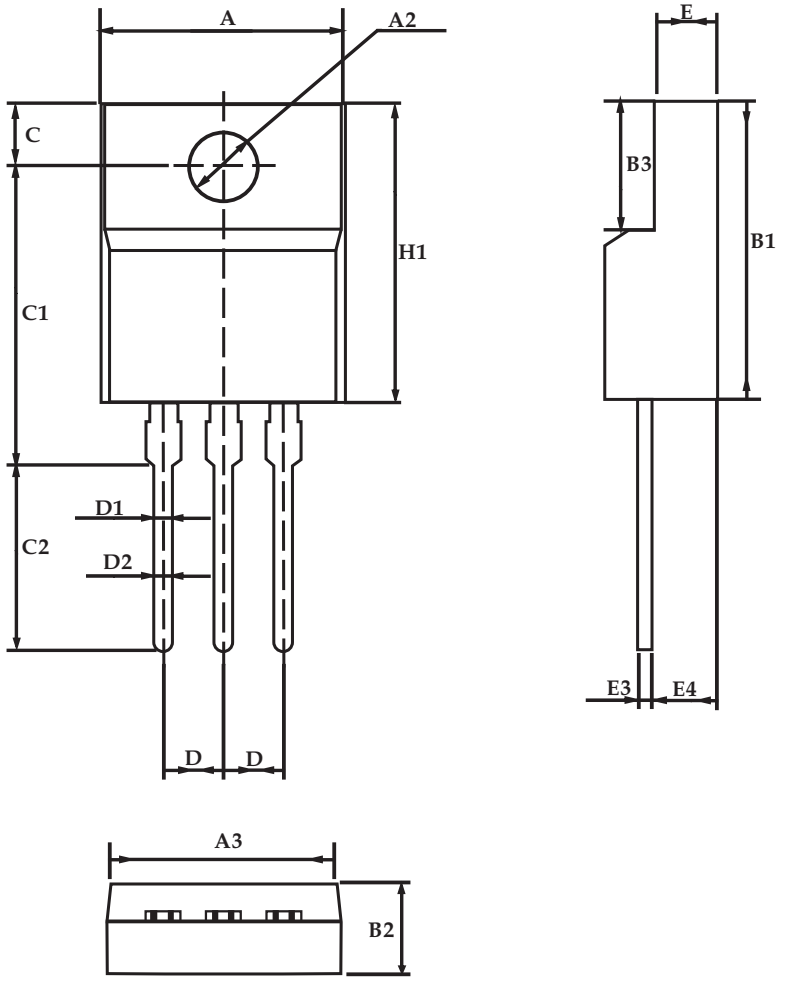


Package Outline

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°	

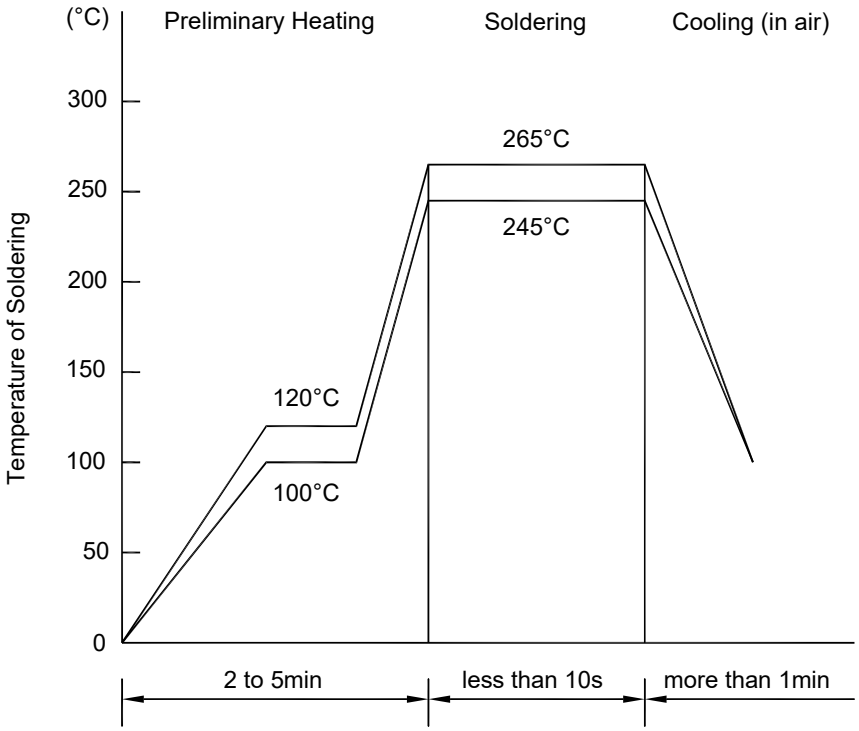


Ordering information

Device	Package	Shipping
PJM65H07NTF	TO-220F	1000 PCS

Conditions of soldering

- **Recommended condition of flow soldering**



Condition of hand soldering

Temperature: 370 °C

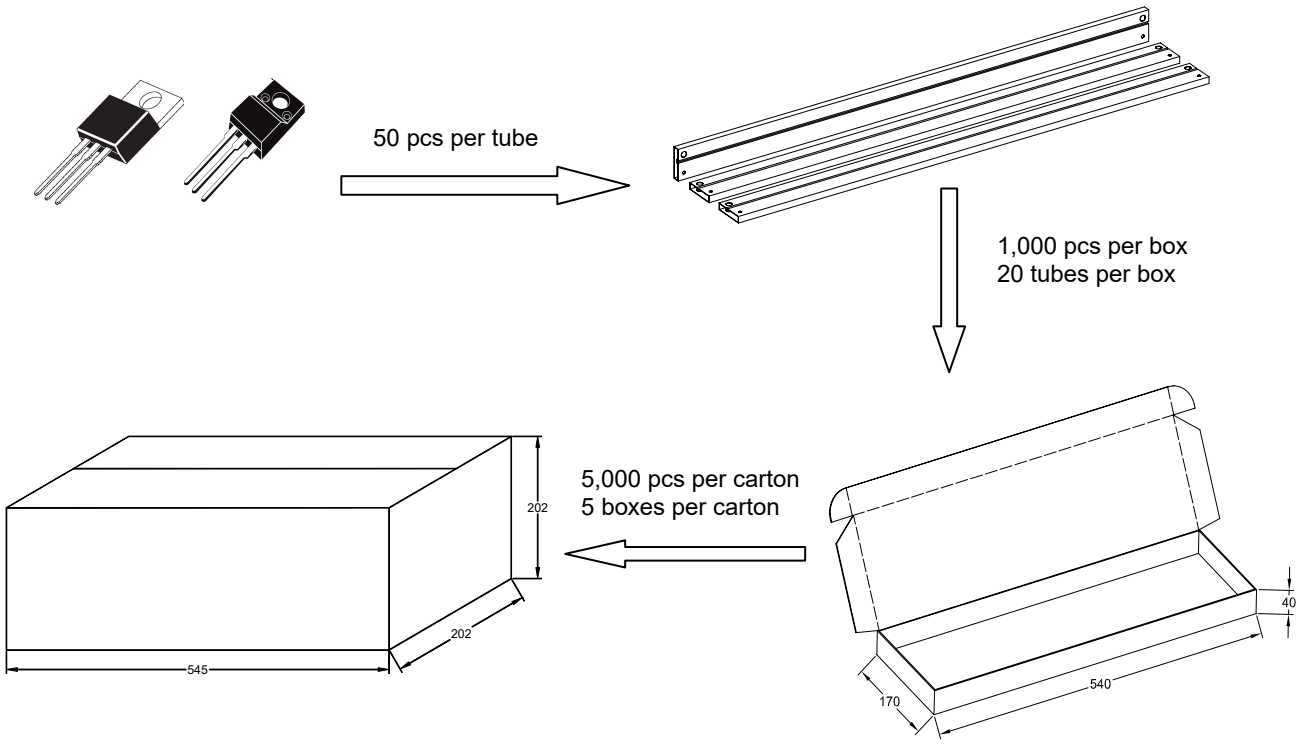
Time: 3s max.

Times: one time

MSL:1 Level

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)