FrelTec

Mathildenstr. 10A
82319 Starnberg
Germany

75V N-Channel MOSFET
TO-220AB

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75V N-Channel MOSFET

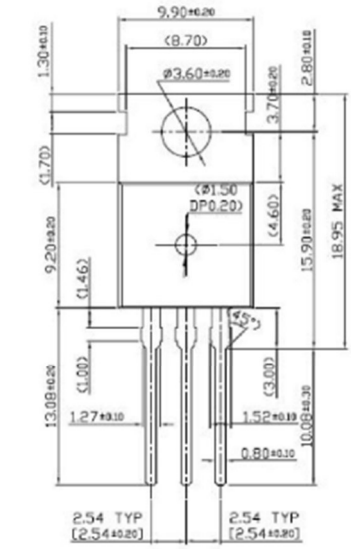
SPECIFICATION

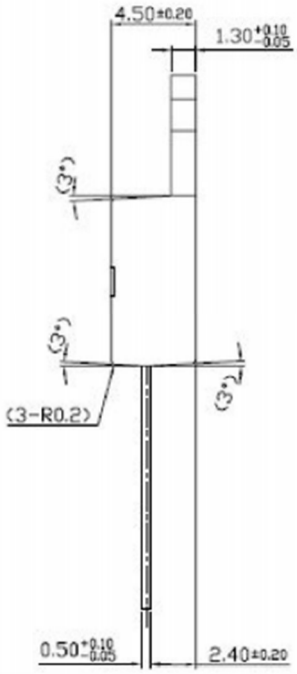
65B		SSF7504xxx		T220		Y0F
Type		Type		Package		Packing
65B: MOSFET		SSF7504		TO-220AB		Y0F: pack in Tube for 50 pc

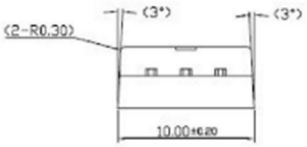
All products according to RoHS (2015/863/EU)

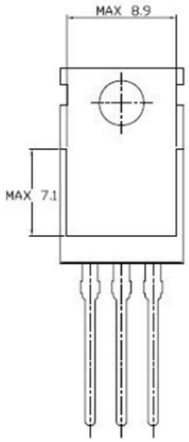
PACKAGE OUTLINE

TO-220









TO-220AB

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Maximum Ratings & Thermal Characteristics
Ratings at 25°C ambient temperature unless otherwise specified

	Parameter	Max.	Unit
I_D @ T_C=25°C	Continuous drain current , VGS @ 10V	220	A
I_D @ T_C=100°C	Continuous drain current , VGS @ 10V	170	
I_{DM}	Pulsed drain current ①	880	
P_D @ TC=25°C	Power dissipation	370	W
	Linear derating factor	2,0	W/°C
V_{GS}	Gate-to-Source voltage	±20	V
dv/dt	Peak diode recovery voltage	20	v/ns
E_{AS}	Single pulse avalanche energy @ L=0,3mH ②	960	mJ
E_{AR}	Repetitive Avalanche energy	TBD	
T_J T_{STG}	Operating junction and storage temperature range	-55 to + 175	°C

Thermal Resistance

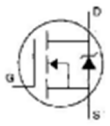
	Parameter	Min	Type	Max.	Units
$R_{\theta JC}$	Junction to case	-	0.41	-	°C /W
$R_{\theta JA}$	Junction to ambient (t ≤ 10s)	-	-	62	

Electrical Characteristics @ T_J=25°C(Unless other specified)

	Parameter	Min.	Typ.	Max.	Units	Test Conditions
$V_{(BR)DSS}$	Drain-to-Source breakdown voltage	75	-	-	V	V_{GS}=0V, I_D=250uA
$R_{DS(on)}$	Static Drain-to-Source on – resistance	-	2.7	4	Ω	V_{GS}=10V, I_D=40A
$V_{GS(th)}$	Gate threshold voltage	2,0	3,1	4,0	V	V_{DS}=V_{GS}, I_D=250uA
gfs	Forward transcoductance	-	65	-	S	V_{DS}=5V, I_D=30A
I_{DSS}	Drain-to-Source leakage current	-	-	10	uA	V_{DS}=80V, V_{GS}=0V
		-	-	50		T_J=125°C
I_{GSS}	Gate-to-Source forward leakage	-	-	100	nA	V_{GS}=20V
	Gate-to-Source reverse leakage	-	-	-100		V_{GS}=-20V
Q_g	Total gate charge	-	140	-	nC	I_D=30A, V_{DD}=30V V_{GS}=10V
Q_{gs}	Gate-to-Source charge	-	30	-		

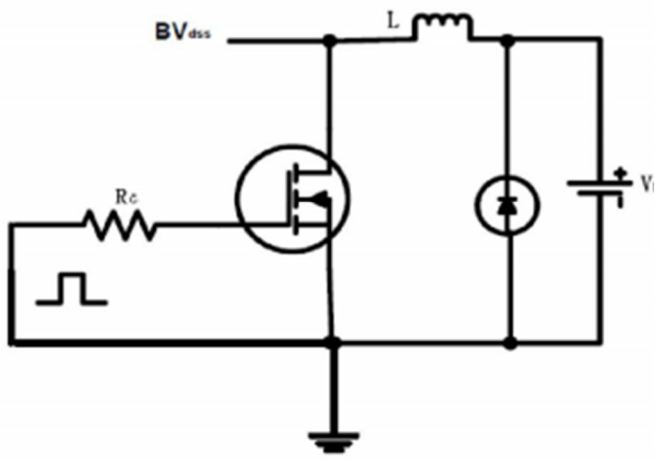
Q_{gd}	Gate-to-Drain(“Miller”) charge	-	36	-		
$T_{d(on)}$	Turn-on-delay time	-	22	-	nS	V_{GS}=30V, I_D=2A R_L=15Ω,R_{GEN}=2,5Ω, VDS=10V,
t_r	Rise time	-	35	-		
$T_{d(off)}$	Turn-off-delay time	-	77,8	-		
t_f	Fall time	-	19,8	-		
C_{iss}	Input capacitance	-	7005	-	pF	V_{GS}=0V V_{DS}=25V f=1,0MHz
C_{oss}	Output capacitance	-	600	-		
C_{rss}	Reverse transfer capacitance	-	280	-		

Source-Drain Ratings and Characteristics

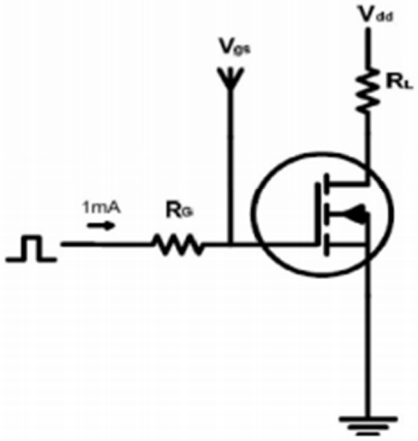
	Parameter	Min.	Typ.	Max.	Units	Test Conditions
I_S	Continuous Source Current (Body diode)	-	-	220	A	MOSFET symbol Showing the Integral reverse p-n junction diode. 
I_{SM}	Pulsed Source Current (Body diode) ①	-	-	880		
V_{SD}	Diode Forward Voltage	-	-	1,3	V	T_J=25°C, I_S=40A, VGS=0V ③
T_{rr}	Reverse Recovery Time	-	80	-	ns	T_J=25°C, I_F=75A, di/dt=100A/us ③
Q_{rr}	Reverse Recovery Charge	-	270	-	nC	
t_{on}	Forward turn-0n time	Intrinsic turn-on time is negligible (turn-on is dominated by Ls + LD)				

Notes:
① Repetitive rating; pulse width limited by max. junction temperature.
② Test condition: L = 0,3mH, ID = 80A, VDD=37,5V
③ Pulse width ≤ 300us, duty cycle ≤ 1,5%, R_G=2,5Ω, Starting T_J=25°C.

EAS test circuits:



Gate charge test circuit:



TO-220AB

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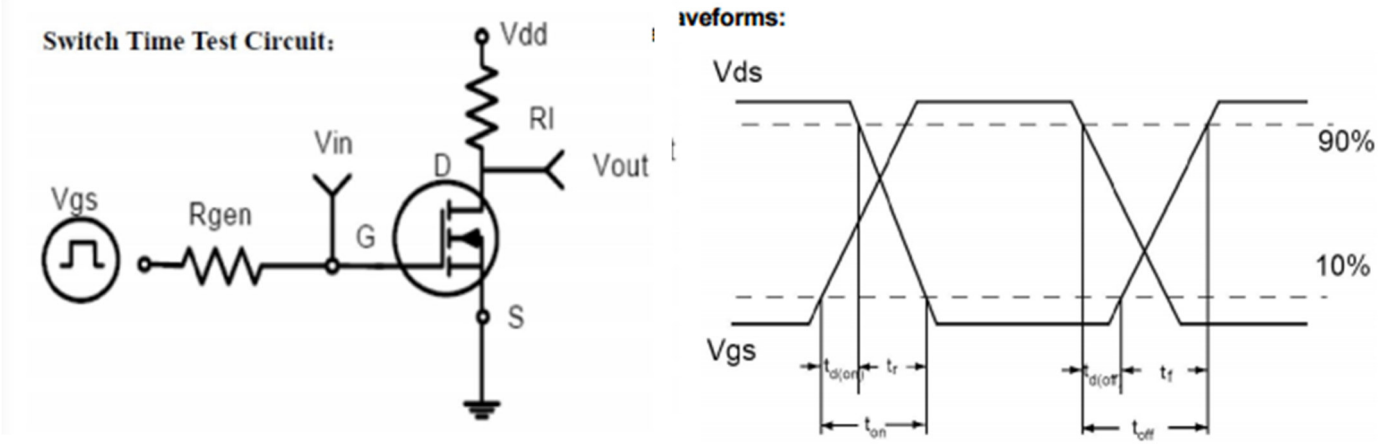

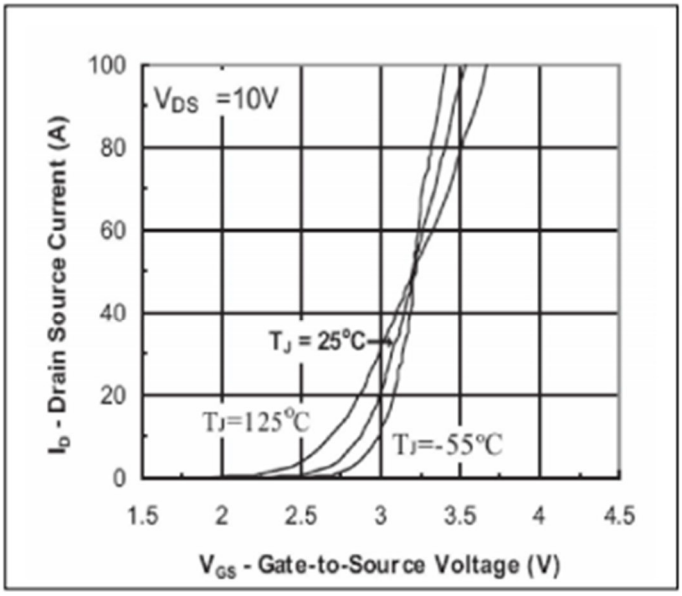

Figure1: Transfer Characteristic

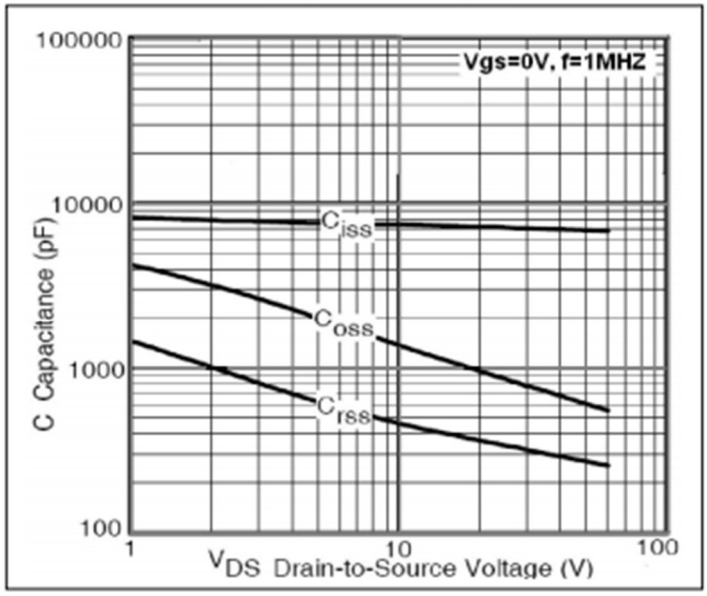

Figure2: Capacitance

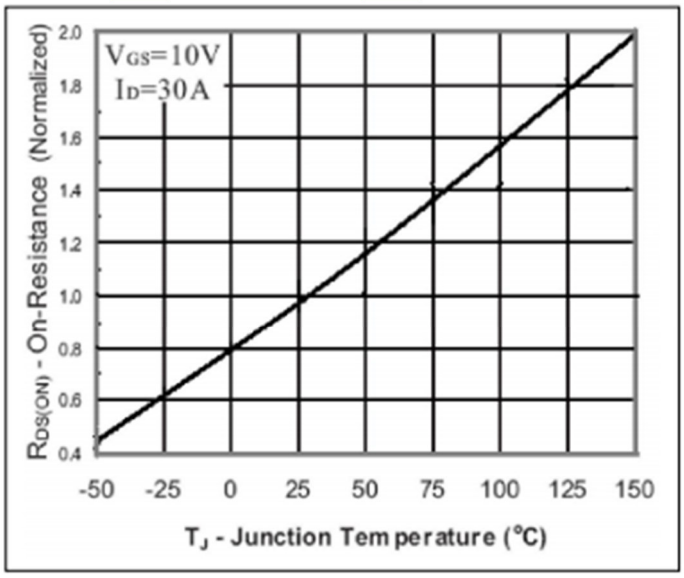

Figure3: On Resistance vs Junction Temperature

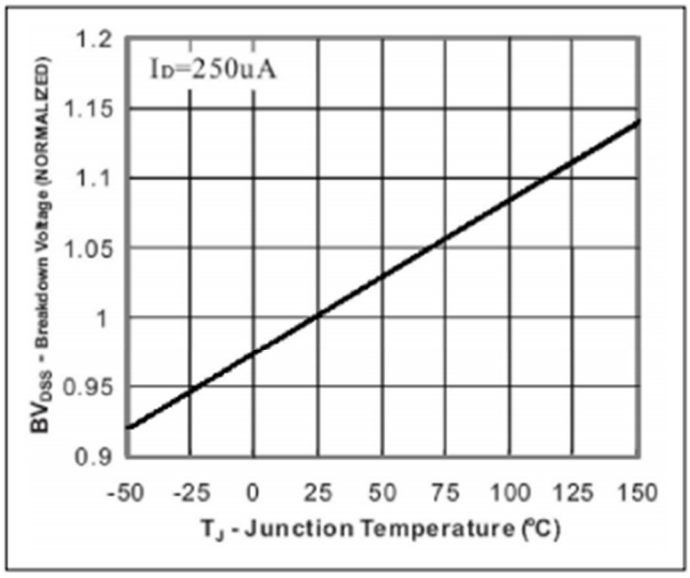

Figure4: Breakdown Voltage vs Junction Temperature

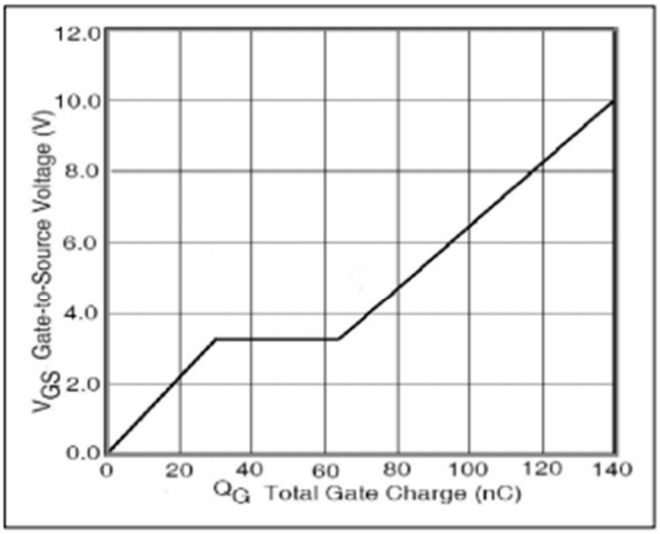

Figure5:Gate Charge

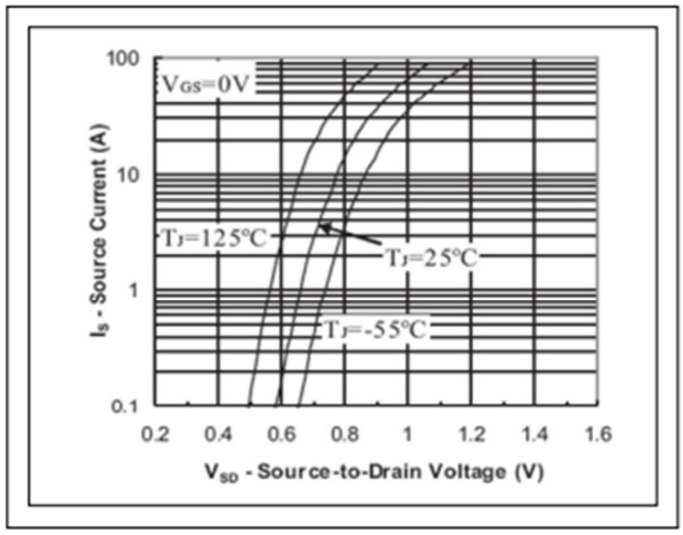

Figure6:Source-Drain Diode Forward Voltage

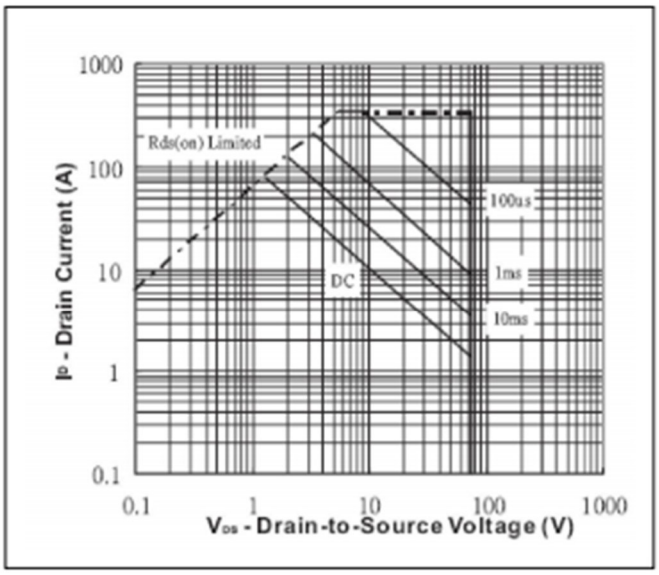

Figure7:Safe Operation Area

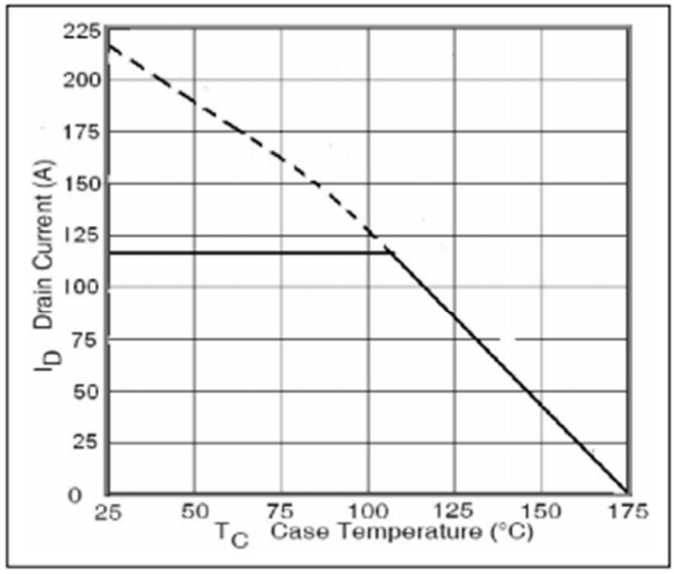

Figure8: Max Drain Current vs Junction

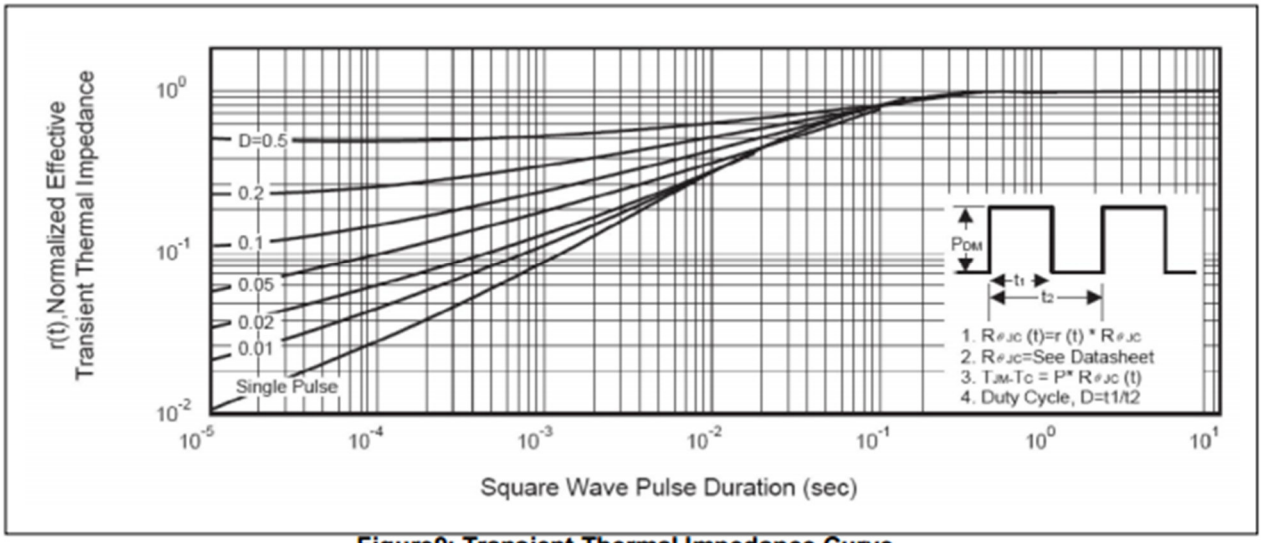

Figure9: Transient Thermal Impedance Curve

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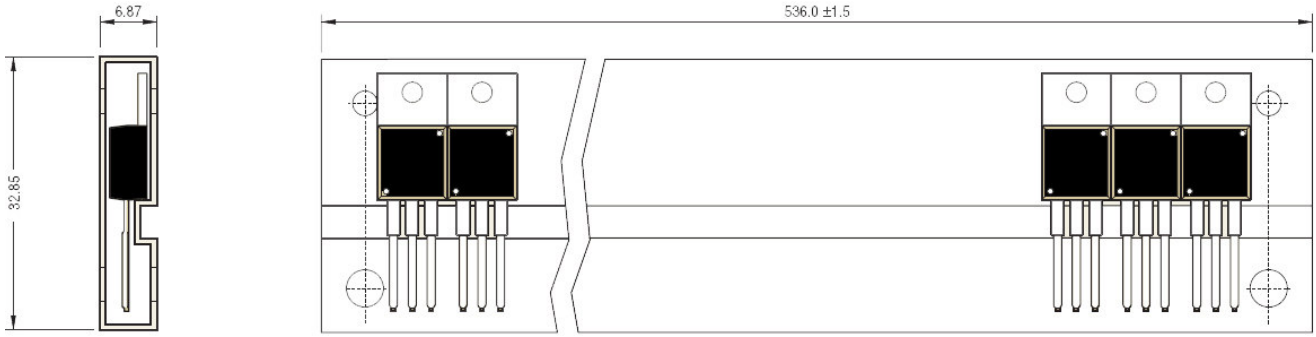
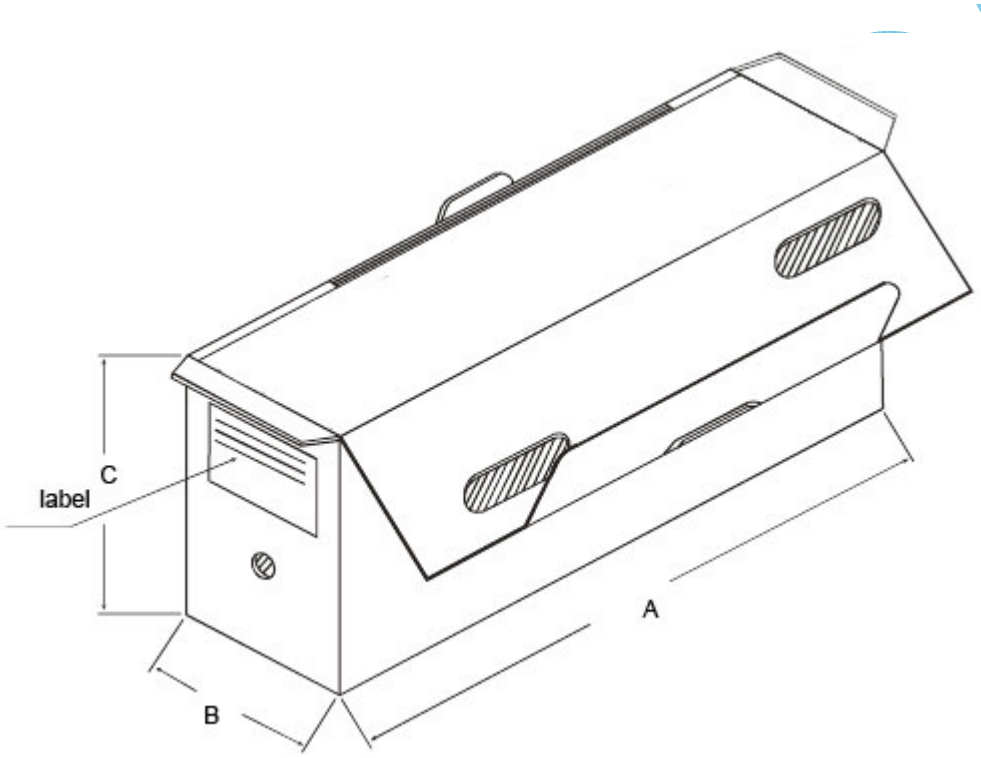
TUBE Package

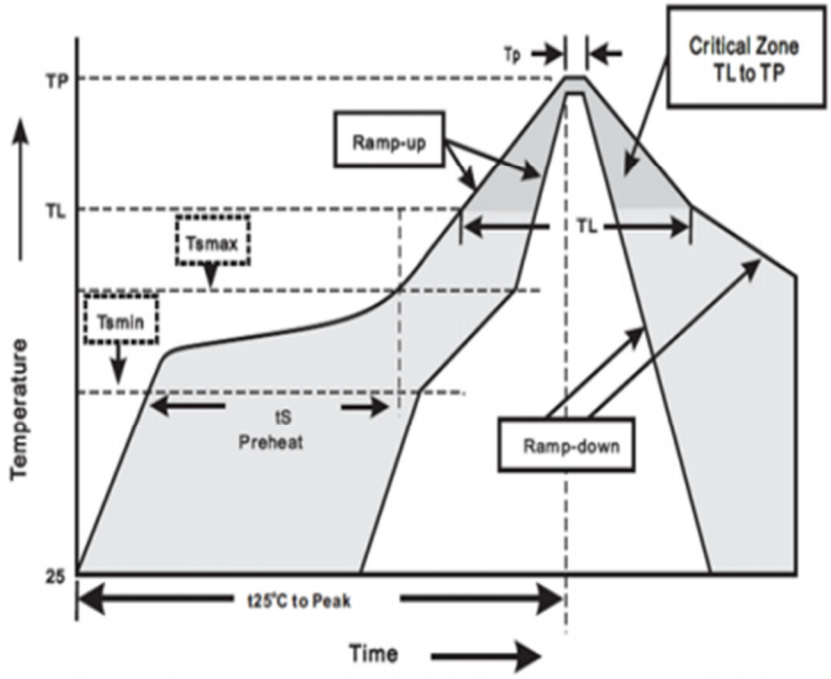


Qty: 50 Pcs/Tube



Packaging	Available Product Outlines	Dimension "A"	Dimension "B"	Dimension "C"	Quantity Box
TUBE PACK	TO220	540mm	170mm	78mm	1000 PCS

Soldering Parameters



Stock period
The performance of these products, including the solderability, is guaranteed for 12 month, provided that they remain packed as they were when delivered and stored at a temperature of 20-30°C and a relative humidity 20-60%RH

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Published by FrelTec® GmbH
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