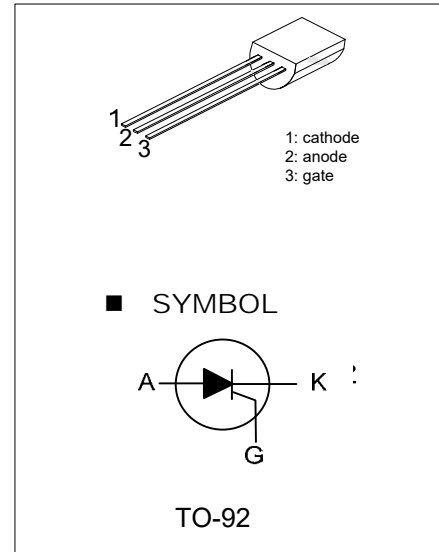


DESCRIPTION

Passivated, sensitive gate thyristors in a plastic envelope, intended for use in general purpose switching and phase control applications. These devices are intended to be interfaced directly to microcontrollers, logic integrated circuits and other low power gate trigger circuits.



QUICK REFERENCE DATA

PARAMETER	SYMBOL	BT169B	BT169D	BT169E	BT169G	BT169H	UNIT
		MAX	MAX	MAX	MAX	MAX	MAX
Repetitive Peak Off-State Voltages	V_{DRM}, V_{RRM}	200	400	500	600	800	V
Average On-State Current	$I_{T(AV)}$	0.5	0	0.5	0	0.5	A
RMS On-State Current	$I_{T(RMS)}$	0.8	0	0.8	0	0.8	A
Non-Repetitive Peak On-State Current	I_{TSM}	8	8		8	8	A

ORDERING INFORMATION

Ordering Number	Package	Pin Assignment			Packing
		1	2	3	
Normal					
BT169B-T92-TA	TO-92	K	G	A	Tape Box
BT169B-T92-B	TO-92	K	G	A	Bulk
BT169D-T92-TA	TO-92	K	G	A	Tape Box
BT169D-T92-B	TO-92	K	G	A	Bulk
BT169E-T92-TA	TO-92	K	G	A	Tape Box
BT169E-T92-B	TO-92	K	G	A	Bulk
BT169G-T92-TA	TO-92	K	G	A	Tape Box
BT169G-T92-B	TO-92	K	G	A	Bulk
BT169H-T92-TA	TO-92	K	G	A	Tape Box
BT169H-T92-B	TO-92	K	G	A	Bulk

Note: Pin Assignment: C:CATHODE G:GATE A:ANODE

<p>BT169X-T92-B</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Repetitive Peak Off-State Voltages</p>	<p>(1) TA: Tape Box, B: Bulk</p> <p>(2) T92: TO-92</p> <p>(3) x: refer to Quick Reference data</p>
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■ ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
Repetitive Peak Off-State Voltages(Note 2)	BT169B	200	V
	BT169D	400	
	BT169E	500	
	BT169G	600	
	BT169H	800	
Peak Gate Voltage	V_{GM}	5	V
Peak Reverse Gate Voltage	V_{RGM}	5	V
Peak Gate Current	I_{GM}	1	A
Average On-State Current (Half Sine Wave, $T_{LEAD} \leq 83^{\circ}C$)	$I_{T(AV)}$	0.5	A
RMS On-State Current (All Conduction Angles)	$I_{T(RMS)}$	0.8	A
Non-Repetitive Peak On-State Current (Half Sine Wave, $T_J=25^{\circ}C$ Prior to Surge)	t=10ms	8	A
	t=8.3ms	9	A
I^2t For Fusing (t=10ms)	I^2t	0.32	A^2S
Repetitive Rate of Rise of On-State Current After Triggering ($I_{TM}=2A, I_G=10mA, dI_G/dt=100mA/\mu s$)	dI_T/dt	50	$A/\mu s$
Peak Gate Power	P_{GM}	2	W
Average Gate Power (Over any 20 ms period)	$P_{G(AV)}$	0.1	W
Junction Temperature	T_J	+125	$^{\circ}C$
Storage Temperature	T_{STG}	-40 ~ +150	$^{\circ}C$

Note: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

2. 1 Although not recommended, off-state voltages up to 800V may be applied without damage, but the thyristor may switch to the on-state. The rate of rise of current should not exceed 15 A/ μs .

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Thermal Resistance Junction to Ambient (typ.)	θ_{JA}	150	$^{\circ}C/W$

Note: pcb mounted, lead length=4mm

■ ELECTRICAL CHARACTERISTICS ($T_J=25^{\circ}C$, unless otherwise specified)

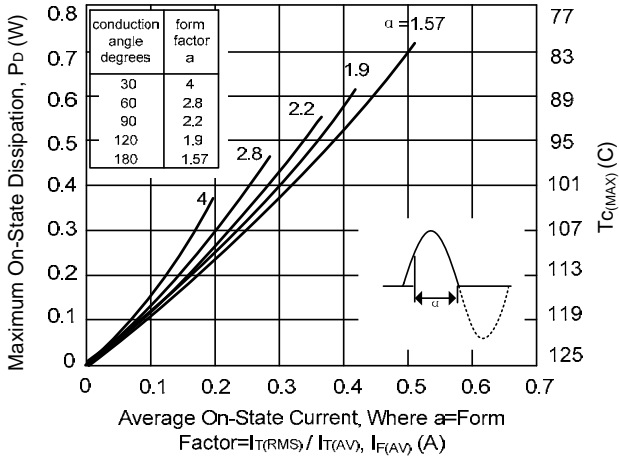
PARAMETER	SYMBOL	TSET CONDITIONS	MIN	TYP	MAX	UNIT
STATIC CHARACTERISTICS						
Gate Trigger Current	I_{GT}	$V_D=12V, I_T=10mA$, gate open circuit	25		55	μA
Latching Current	I_L	$V_D=12V, I_{GT}=0.5mA, R_{GK}=1k\Omega$		2	6	mA
Holding Current	I_H	$V_D=12V, I_{GT}=0.5mA, R_{GK}=1k\Omega$		2	5	mA
On-State Voltage	V_T	$I_T=1A$		1.2	1.35	V
Gate Trigger Voltage	V_{GT}	$V_D=12V, I_T=10mA$, gate open circuit	0.2	0.5	0.8	
		$V_D=V_{DRM(MAX)}, I_T=10mA, T_J=125^{\circ}C$, gate open circuit		0.3		
Off-State Leakage Current	I_D, I_R	$V_D=V_{DRM(MAX)}, V_R=V_{RRM(MAX)}$, $T_J=125^{\circ}C, R_{GK}=1k\Omega$		0.05	0.1	mA

■ ELECTRICAL CHARACTERISTICS(Cont.)

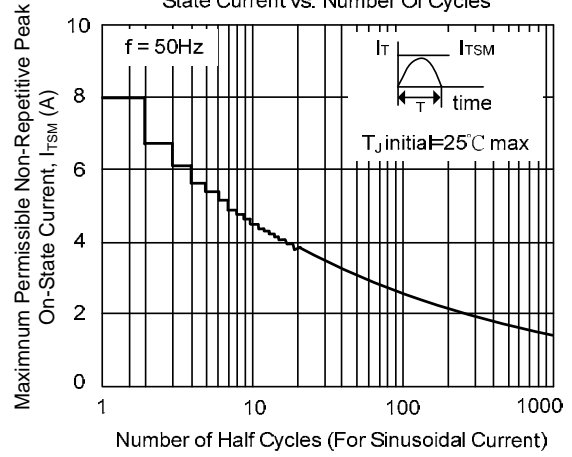
PARAMETER	SYMBOL	TSET CONDITIONS	MIN	TYP	MAX	UNIT
DYNAMIC CHARACTERISTICS						
Critical Rate of Rise of Off-State Voltage	dV_D/dt	$V_{DM}=67\% V_{DRM(MAX)}, T_J=125^{\circ}C$, exponential waveform, $R_{GK}=1k\Omega$	500	8		$V/\mu s$
Gate Controlled Turn-On Time	t_{gt}	$I_{TM}=2A, V_D=V_{DRM(MAX)}, I_G=10mA$, $dI_G/dt=0.1A/\mu s$		2		μs
Circuit Commutated Turn-Off Time	t_q	$V_D=67\% V_{DRM(MAX)}, T_J=125^{\circ}C$, $I_{TM}=1.6A, V_R=35V, dI_{TM}/dt=30A/\mu s$, $V_D/dt=2V/\mu s, R_{GK}=1k\Omega$		100		μs

TYPICAL CHARACTERISTICS

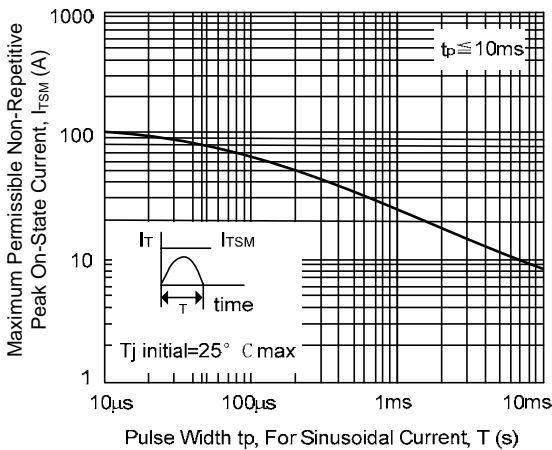
Maximum On-State Dissipation vs. Average On-State Current



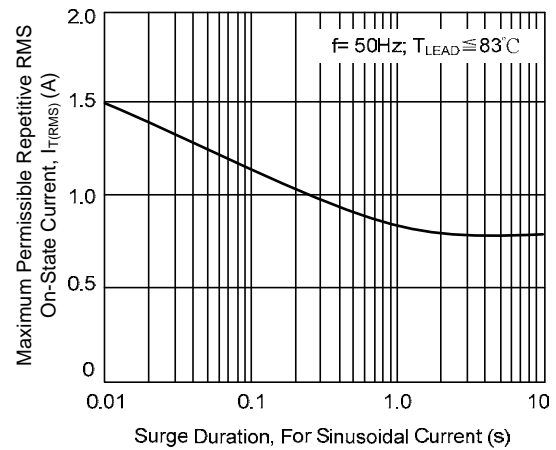
Maximum Permissible Non-Repetitive Peak On-State Current vs. Number Of Cycles



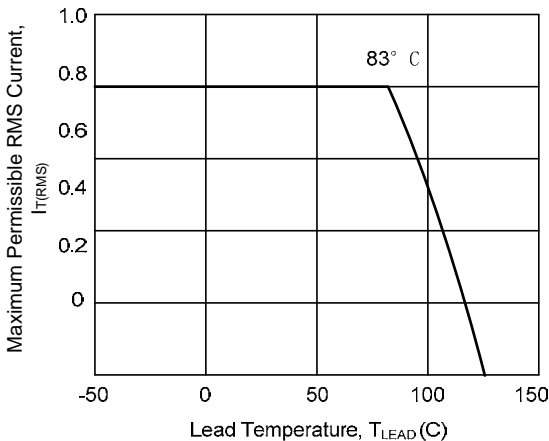
Maximum Permissible Non-Repetitive Peak On-State Current vs. Pulse Width t_p , For Sinusoidal Current



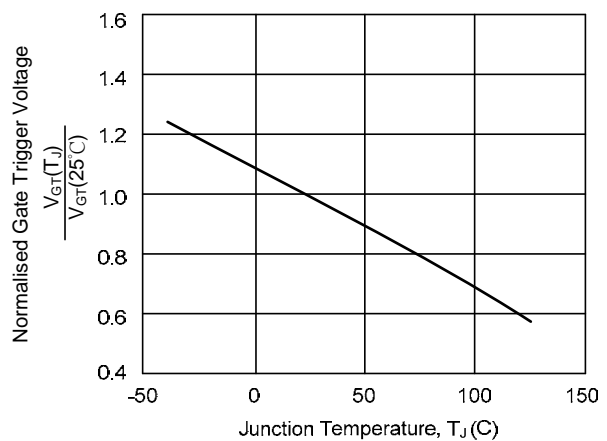
Maximum Permissible Repetitive RMS On-State Current vs. Surge Duration, For Sinusoidal Currents



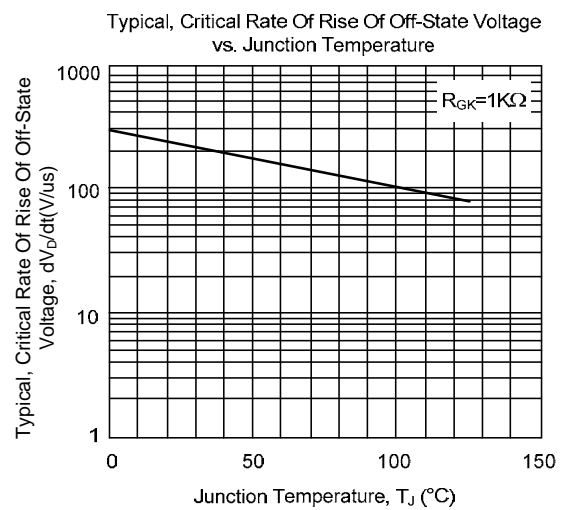
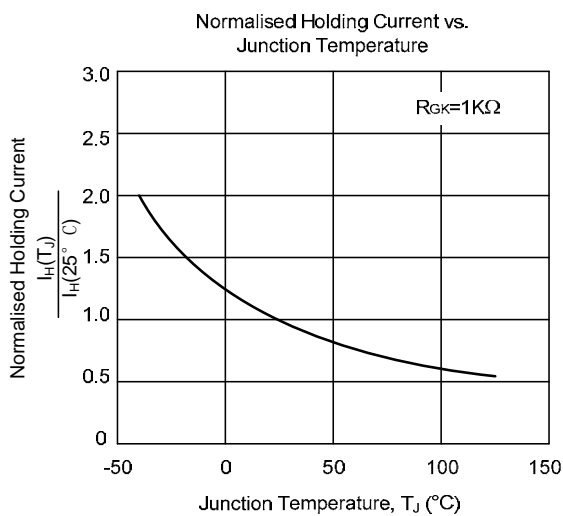
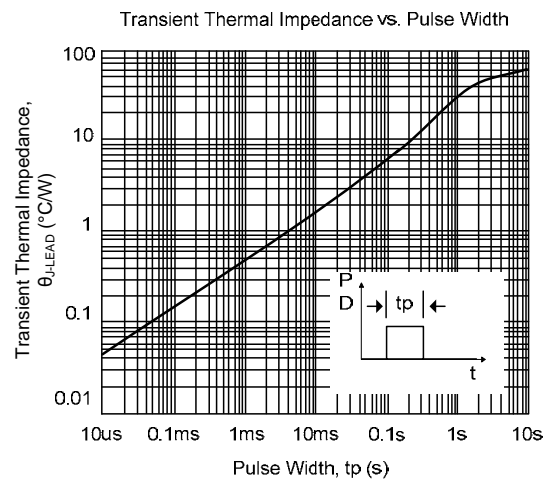
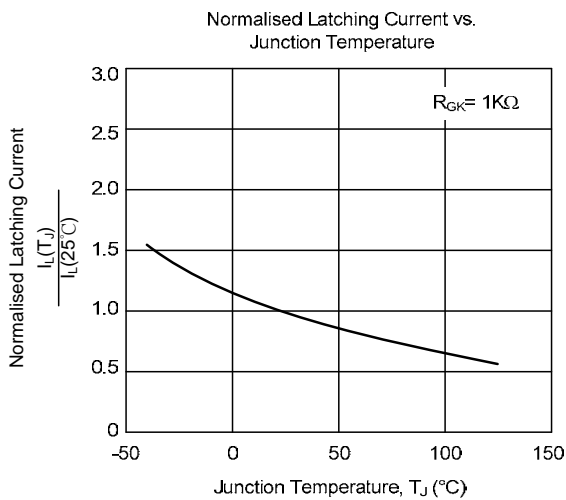
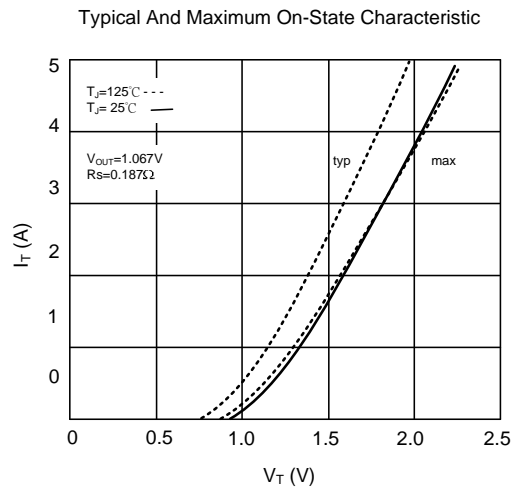
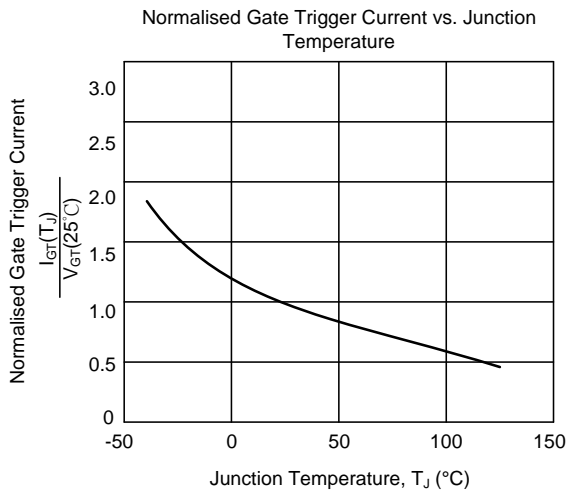
Maximum Permissible RMS Current vs. Lead Temperature

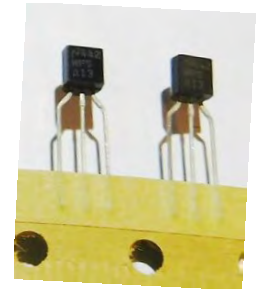


Normalised Gate Trigger Voltage vs. Junction Temperature



TYPICAL CHARACTERISTICS(Cont.)





Packing Specification of AMMO for TO-92

1. Taping specification

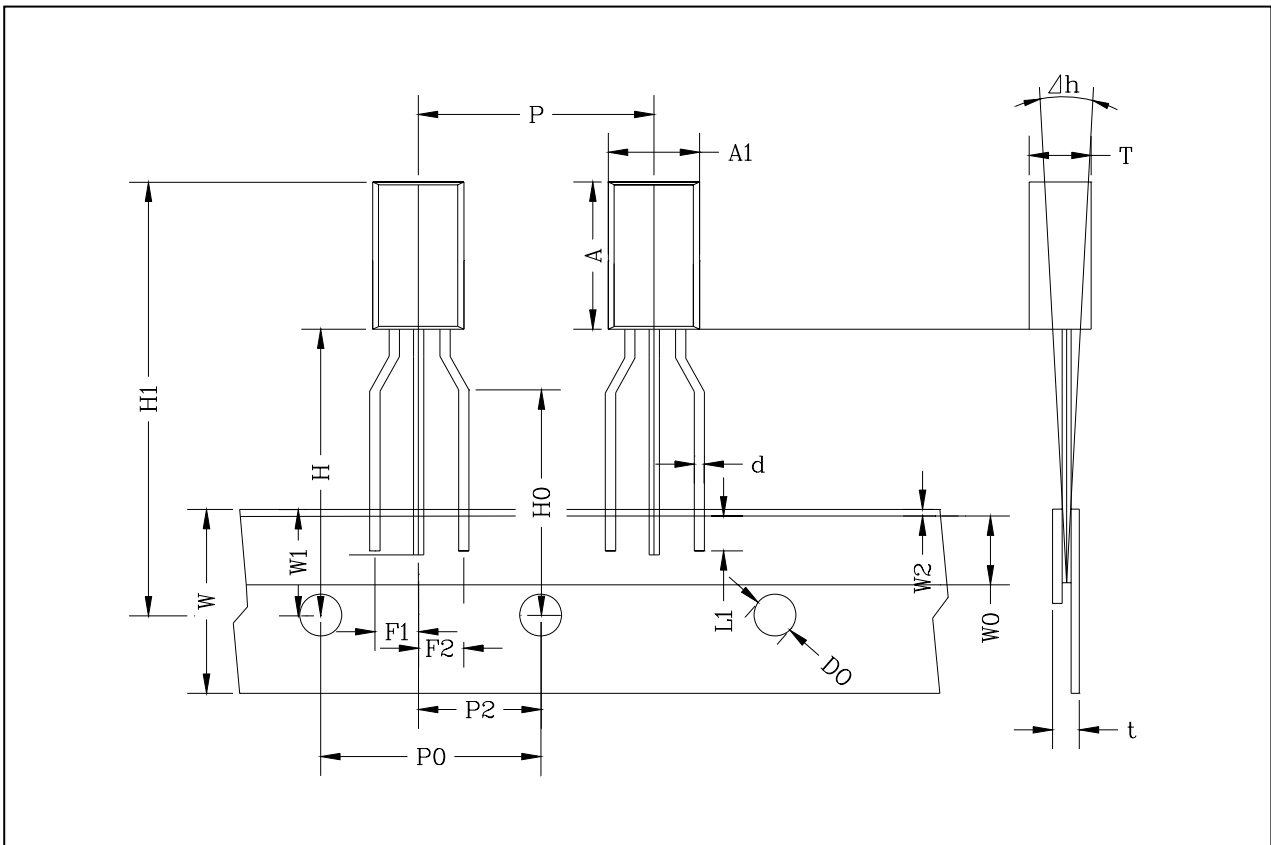
Taping Specification	Packaging classification	Taping classification	Packaged quantity(PCS)
		Ammo pack	Forward direction

2. Taping dimension

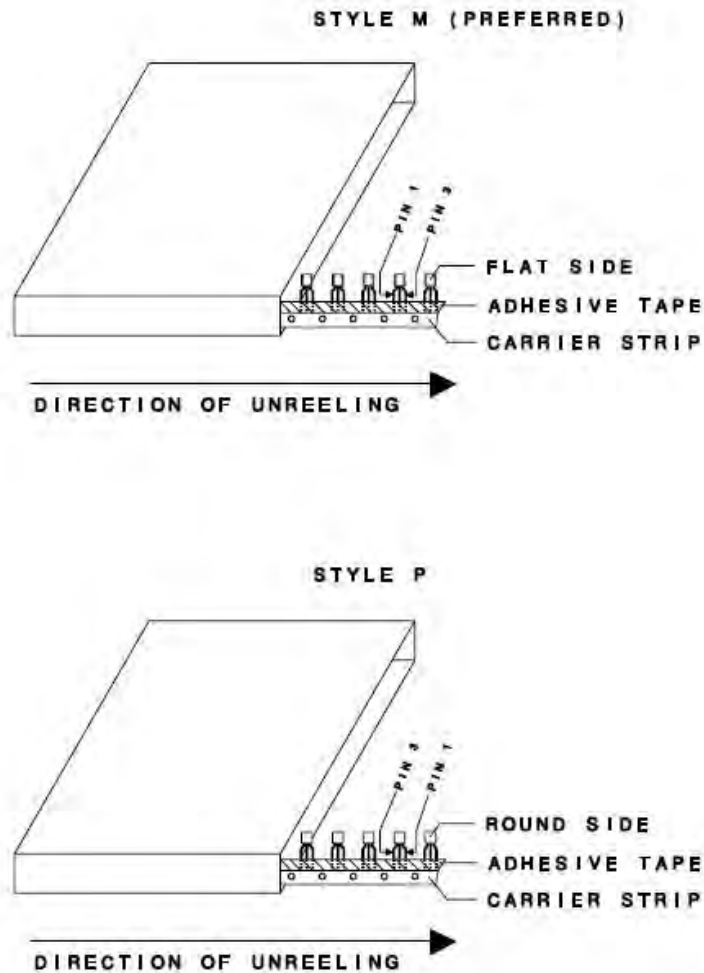
Unit : [mm]

Item	Symbol	Value & Tolerance
Body width	A1	4.9 ± 0.2
Body height	A	4.8 ± 0.2
Body thickness	T	3.9 ± 0.2
Lead wire diameter	d	0.5 ± 0.05
Pitch of component	P	12.7 ± 1.0
Feed hole pitch	PO	12.7 ± 0.2
Hole center to component center	P2	6.35 ± 0.5
Lead to lead distance	F1,F2	2.5 + 0.3/-0.1
Component alignment	Δh	±0 1.0
Tape width	W	18.0 +1.0/-0.5
Hole-down tape width	WO	6.0 ± 0.5
Hole position	W1	9.0 + 1.0/-0.5
Hole down Tape position	W2	1.0 (Max.)
Height of component from tape center	H	19.0 (Min.)
Lead wire clinch height	HO	16.0 +1.0/-0.5
Component height	H1	23.8±0.2
Lead wire(tape portion)	L1	2.5 (Min.)
Feed hole diameter	DO	4.0 ± 0.2
Total tape thickness	t	0.7 ± 0.2

3. Taping direction



4. Packing style

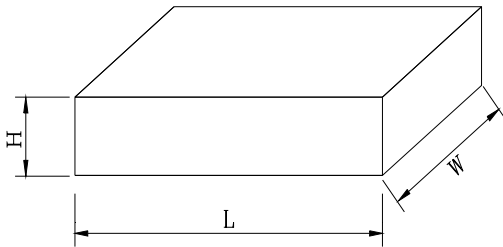


Note: The box is accessible from either side depending upon whether PIN 1 or PIN 3 is required at the leading edge.

5. Box dimension

Unit : [mm]

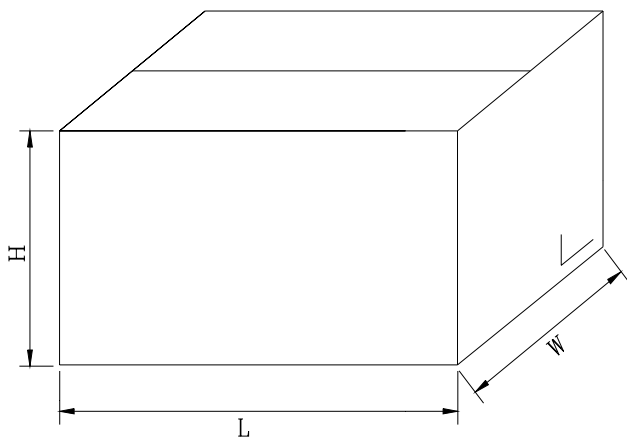
Inner Box



(1) Dimension : 355(L)×155(W)×48(H) (mm)

(2) Quantity : 2K pcs per each Inner Box

Out Box



(1) Dimension : 350(L)×335(W)×240(H) (mm)

(2) Quantity : contain 10ea Inner Box (Total 20K pcs)