



BT134

TRIAC

■ GENERAL DESCRIPTION

Glass passivated, sensitive gate triac in a plastic envelope, intended for use in general purpose bidirectional switching and phase control applications, where high sensitivity is required in all four quadrants.

■ MARKING



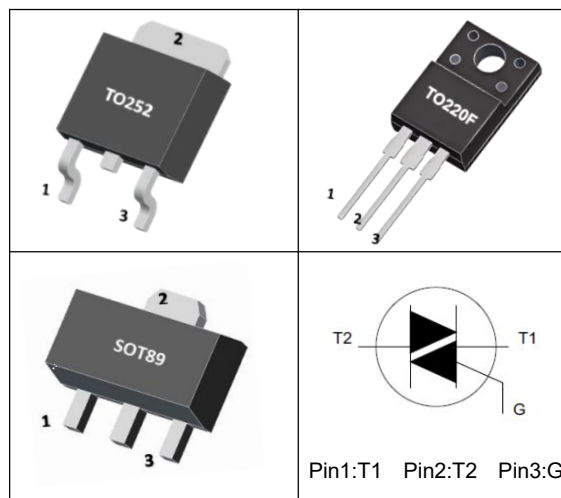
: HY LOGO

BT134=Device Code

600E:V_{DRM}/V_{RRM}=600V

XXXX=Date Code

Solid Dot=Green molding compound



■ ABSOLUTE MAXIMUM RATINGS (TC=25°C, unless otherwise specified)

SYMBOL	PARAMETER	TEST CONDITION	VALUE	UNIT
V _{DRM}	Repetitive Peak off-state voltage	T _j =25°C	600	V
I _{T(RMS)}	RMS on-state current full sine wave; T _{mb} ≤107°C		4	A
I _{TSM}	Non-repetitive peak on-state current (Full sine wave T _J = 25°C prior to surge)	t = 20ms	25	A
		t = 16.7ms	27	A
I ² t	I ² t for fusing	t=10ms	3.1	A ² S
di/dt	Repetitive rate of rise of on-state current after triggering I _{TM} = 6 A; I _G = 0.2A; di _G /dt = 0.2A/μs	T2+, G+	50	A/μs
		T2+, G -	50	A/μs
		T2-, G -	50	A/μs
		T2-, G+	10	A/μs
V _{GM}	Peak gate voltage		5	V
I _{GM}	Peak gate current		2	A
P _{GM}	Peak gate Power		5	W
P _{G(AV)}	Average gate Power(over any 20ms period)		0.5	W
T _j	Operating Junction Temperature		125	°C
T _{stg}	Storage Temperature		-40 to +150	°C

Notes: 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. The device is guaranteed to meet performance specification within 0°C~70°C operating temperature range and assured by design from -20°C ~ 85°C.

3. Although not recommended, off-state voltages up to 800V may be applied without damage, but the triac may switch to the on-state. The rate of rise of current should not exceed 3A/μs.



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■ THERMAL RESISTANCES

PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	SOT-89	R θ JA	170	°C/W
	TO-252/TO-220F		62.5	°C/W
Junction to Case	TO-220F	R θ Jc	3.31	°C/W
	TO-252		2.6	°C/W
	SOT-89		120	°C/W

■ ELECTRICAL CHARACTERISTICS(T_j=25°C unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT	
Gate trigger current	I _{GT}	T2+ G+	V _D =12V I _T =0.1A		2.5	10	mA	
		T2+ G-			4	10	mA	
		T2- G-			5	10	mA	
		T2- G+			11	25	mA	
Latching Voltage	I _L	T2+ G+	V _D =12V, I _T =0.1A		3.0	15	mA	
		T2+ G-			10	20	mA	
		T2- G-			2.5	15	mA	
		T2- G+			4.0	20	mA	
Holding current	I _H	V _D =12V, I _{GT} =0.1A				2.2	15	mA
On-State Voltage	V _T	I _T =5A				1.4	1.7	V
Gate Trigger Voltage	V _{GT}	V _D =12V, I _T =0.1A				0.7	1.5	V
		V _D =400V, I _T =0.1A, T _J =125°C			0.25	0.40		
Off-state leakage current	I _D	V _D =V _{DRM(max)} , T _J =125°C				0.1	0.5	mA

DYNAMIC CHARACTERISTICS(T_J=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Critical Rate of Rise of off-state Voltage	dV _D /dt	V _{DM} =67%V _{DRM(max)} , T _J =125° Exponential waveform, Gate open circuit		50		V/μs
Gate Controlled Turn-on Time	t _{gt}	I _{TM} =20A, V _D =V _{DRM} , I _G =0.1A dI _G /dt=5A/μs		2		μs



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■ TYPICAL CHARACTERISTICS (1)

Fig 1. Maximum On-State Dissipation, P_{tot} Versus Rms On-state Current, $I_{T(RMS)}$ where α =conduction angle.

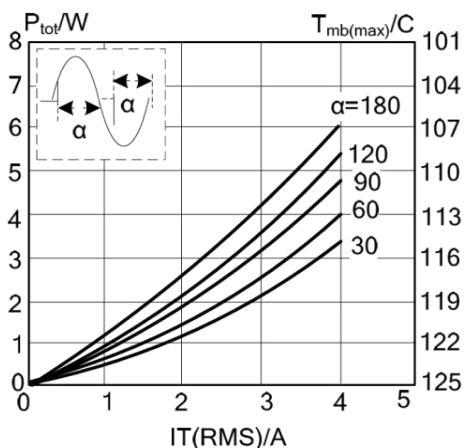


Fig 2. Maximum Permissible Non-repetitive Peak On-state Current, I_{TSM} , Versus Pulse Width t_p For Sinusoidal Currents, $t_p \leq 20ms$

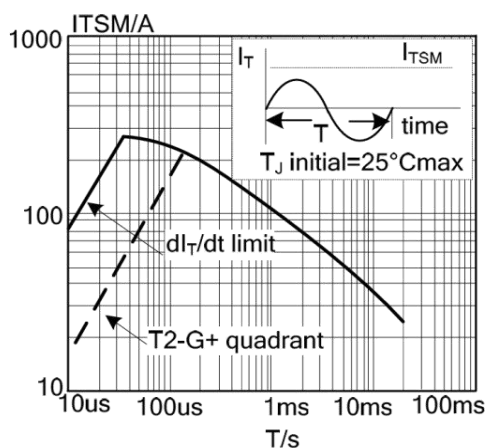


Fig 3. Maximum Permissible Non-repetitive Peak On-state Current, I_{TSM} , Versus Number Of Cycles, For Sinusoidal Currents, $f=50Hz$.

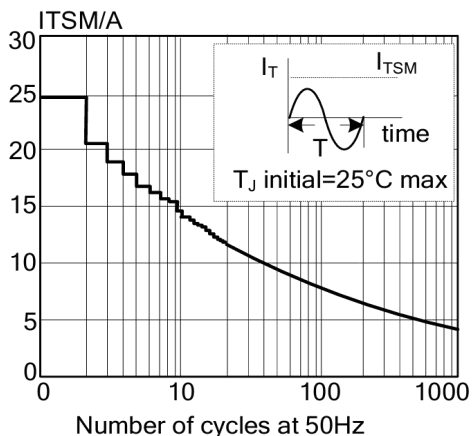


Fig 4. Maximum Permissible Rms Current, $I_{T(RMS)}$, Versus Mounting Base Temperature, T_{mb}

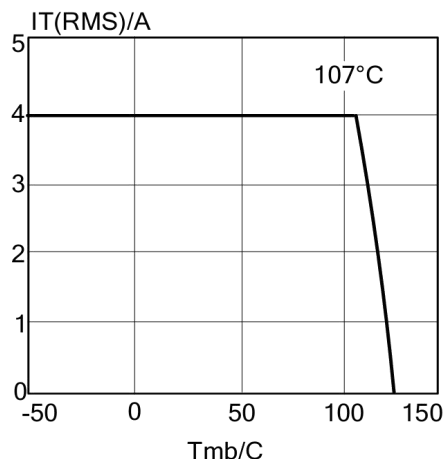


Fig 5. Maximum Permissible Repetitive Rms On-State Current, $I_{T(RMS)}$, Versus Surge Duration, For Sinusoidal Currents, $f=50Hz$, $T_{mb} \leq 107^\circ C$

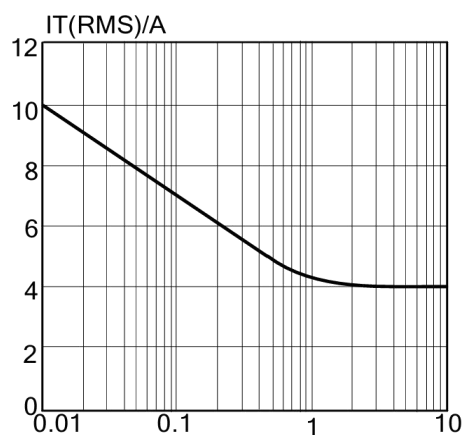
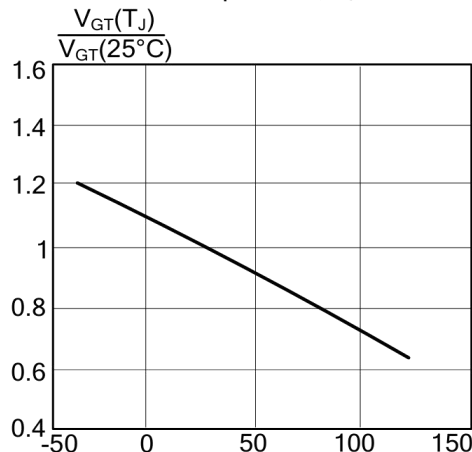


Fig 6. Normalised Gate Trigger Voltage, $V_{GT}(T_J)/V_{GT}(25^\circ C)$, Versus Junction Temperature, T_J





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■ TYPICAL CHARACTERISTICS (Con.t)

Fig 7. Normalised Gate Trigger Current, $I_{GT}(T_J)/I_{GT}(25^\circ\text{C})$, Versus Junction Temperature, T_J

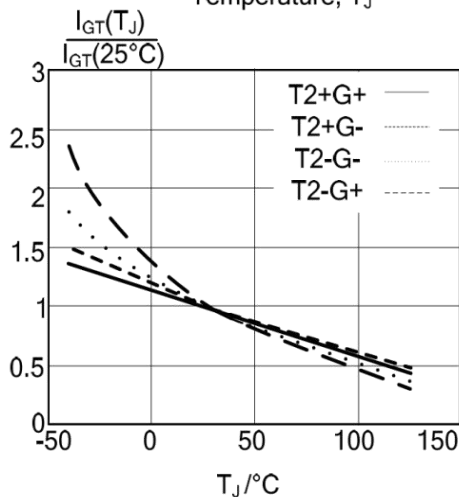


Fig 8. Normalised Latching Current, $I_L(T_J)/I_L(25^\circ\text{C})$ Versus Junction Temperature, T_J

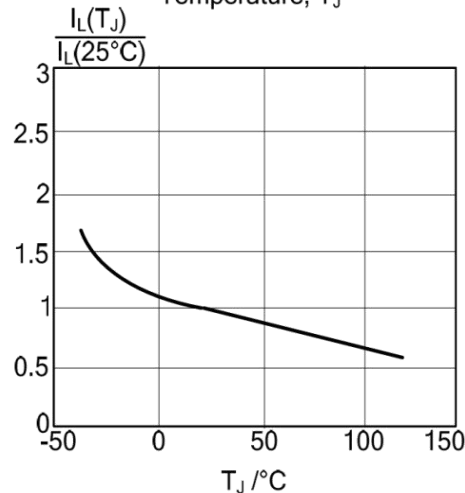


Fig 9. Normalised Holding Current, $I_H(T_J)/I_H(25^\circ\text{C})$, versus junction temperature, T_J

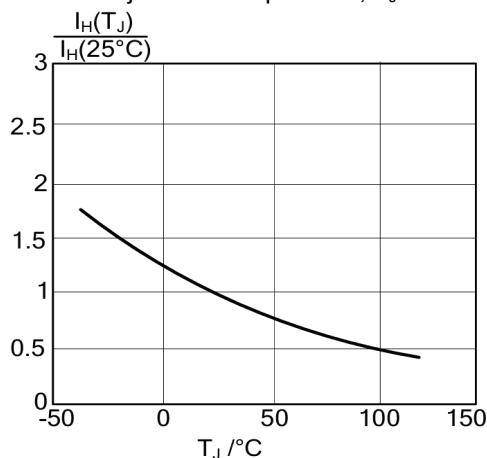


Fig 10. Typical And Maximum On-state Characteristic

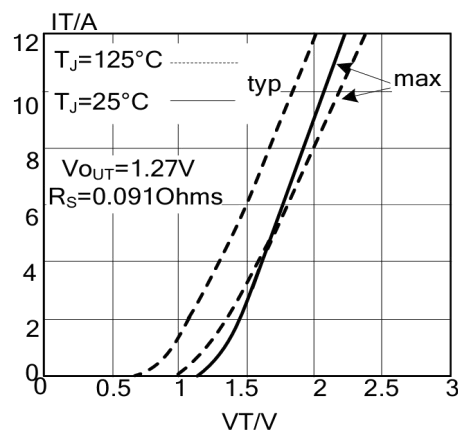


Fig 11. Transient Thermal Impedance Z_{thj-mb} , Versus Pulse Width t_p

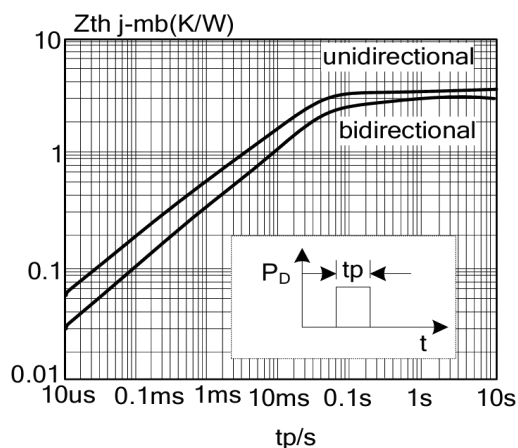
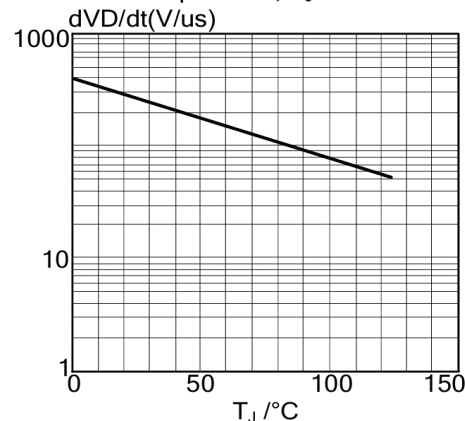


Fig 12. Typical Critical Rate Of Rise Of Off-state Voltage, dV_D/dt Versus Junction Temperature, T_J

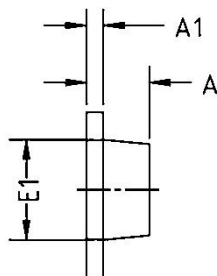
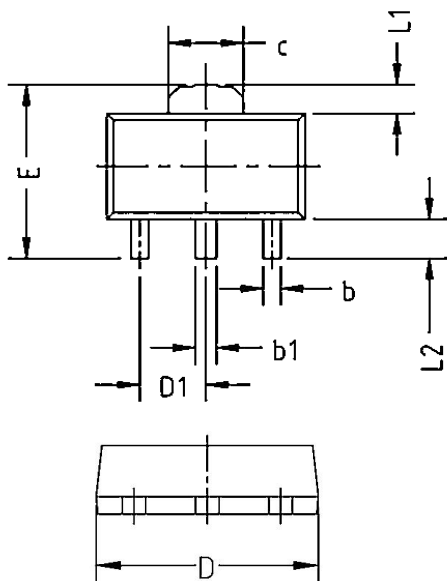




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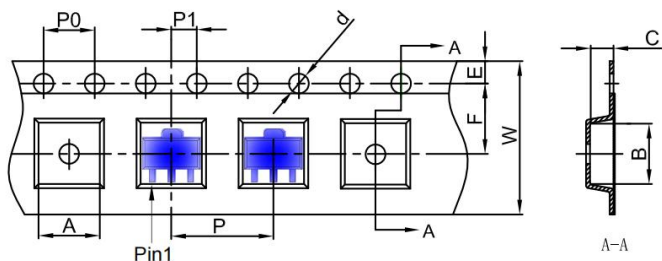
■ SOT-89 PACKAGE OUTLINE DIMENSIONS



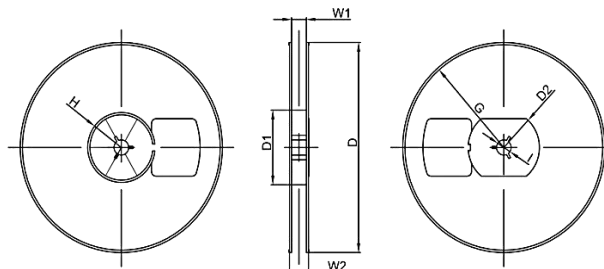
COMMON DIMENSION(MM)			
PKG	SOT-89		
Symbol	MIN	MON	MAX
A	1.450	1.500	1.550
A1	0.350	0.400	0.450
b	0.350	0.400	0.48
b1	0.430	0.480	0.550
C	1.500	1.550	1.650
D	4.450	4.550	4.700
D1	1.470	1.500	1.550
E	4.100	4.200	4.300
E1	2.500	2.550	2.650
L1	0.650	0.700	0.750
L2	0.900	0.950	1.000

■ SOT89 PACKAGING INFORMATION

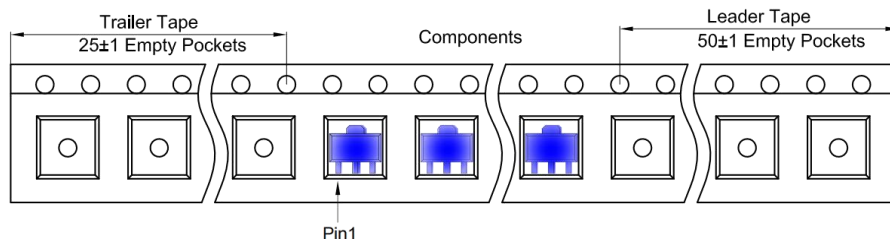
SOT-89 Embossed Carrier Tape



SOT-89 Reel



SOT-89 Tape Leader and Trailer



REEL	Reel Size
1000 pcs	7 inch

Dimensions are in millimeter

Reel Option	D	D1	D2	G	H	I	W1	W2
7" Dia	Ø180.00	60.00	R32.00	R86.50	R30.00	Ø13.00	13.20	16.50

Dimensions are in millimeter

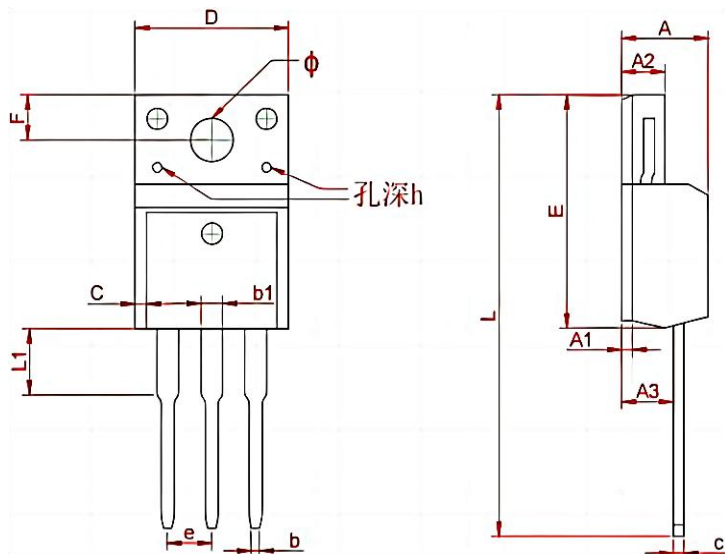
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-89-3L	4.85	4.45	1.85	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00



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TO-220F PACKAGE OUTLINE DIMENSIONS

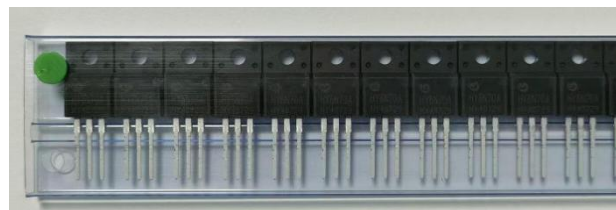


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max	Min	Max
A	4.300	4.750	0.169	0.185
A1	1.830 REF		0.072 REF	
A2	2.300	2.850	0.090	0.112
A3	2.500	2.900	0.098	0.114
b	0.400	0.420	0.016	0.016
b1	1.220	1.280	0.048	0.050
C	0.690	0.720	0.027	0.028
c	0.490	0.510	0.019	0.020
D	9.960	10.200	0.392	0.400
E	15.000	15.950	0.588	0.625
e	2.574 TYP		0.101TYP	
F	3.470 REF		0.136 REF	
y	3.200 REF		0.125 REF	
h	0.000	0.300	0.000	0.012
L	28.780	28.900	1.128	1.133
L1	2.990	3.100	0.117	0.122

TO-220F PACKING INFORMATION



50PCS



20 Tube



Outer Box

5 Inner
Box



Inner Box

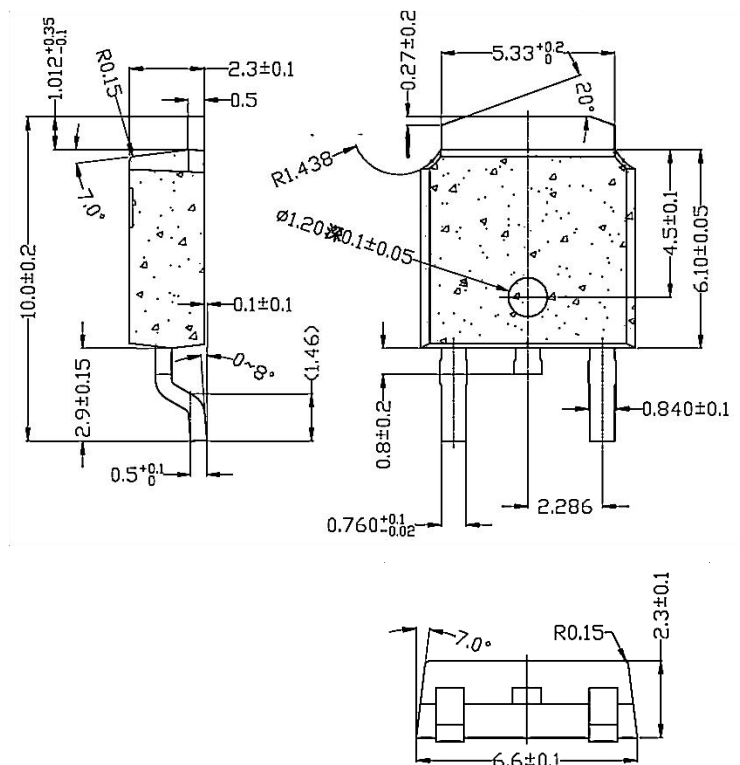
Package version	Tube dimensions LxWxH (mm)	Per Tube (pcs)	Tube per box	Inner box dimensions LxWxH (mm)	PCS/ Inner box	Outer box dimensions LxWxH(mm)	PCS/ Outer box
TO-220F	530*32*7	50	20	580*155*50	1000	602*277*188	5000



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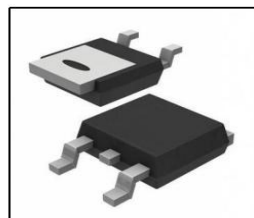
TO-252 PACKAGE OUTLINE DIMENSIONS



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: ± 0.05 mm.
3. The pad layout is for reference purposes only.

TO - 252 PACKING INFORMATION



2500PC
S/reel



2 Reel/BOX



5 Inner
Box

Outer box

Inner box

Package version	Reel dimensions $\Phi \times H$ (mm)	Per Reel (pcs)	Reels per box	Inner box dimensions L×W×H (mm)	Outer box (pcs)	Outer box dimensions L×W×H (mm)
TO-252	$\Phi 330 \times 20$	2500	2	360×340×50	25000	375×375×280