

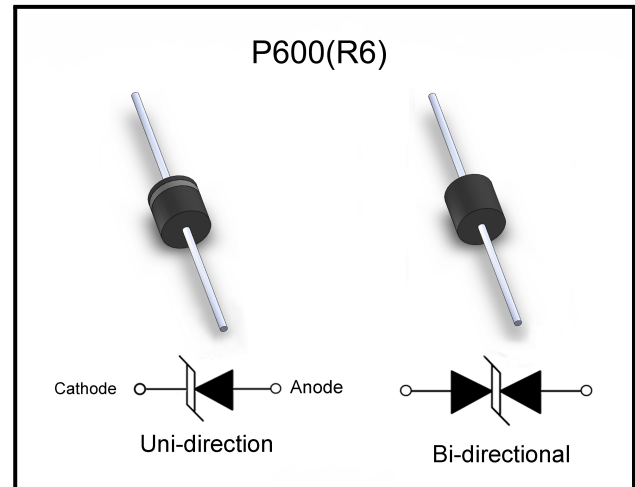
8KPxxN Series

Transient Voltage Suppressor

Features

- Excellent clamping capability
- Low leakage current
- Low capacitance
- High surge capability
- Glass passivated chip
- Epoxy resin package
- Built-in strain relief
- Will not fatigue
- RoHS Compliant
- Fast response time: typically less than 1.0ps from 0 Volts to V_{BR} min

Package



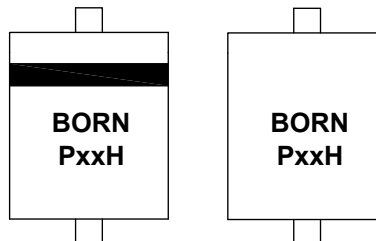
Mechanical Characteristics

- Package: P600 plastic package.
- Lead Finish: Matte Tin
- Case Material: Epoxy Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020

Applications

- Telecom
- Computer
- Industrial electronic
- Consumer electronic

Making Code



Summary of Packing Options

Package	Packing Description	Packing Quantity	Industry Standard
P600	Tape/Box, Box	300	BORN SPEC
	Tape/Reel, 13" reel	800	EIA STD RS-296

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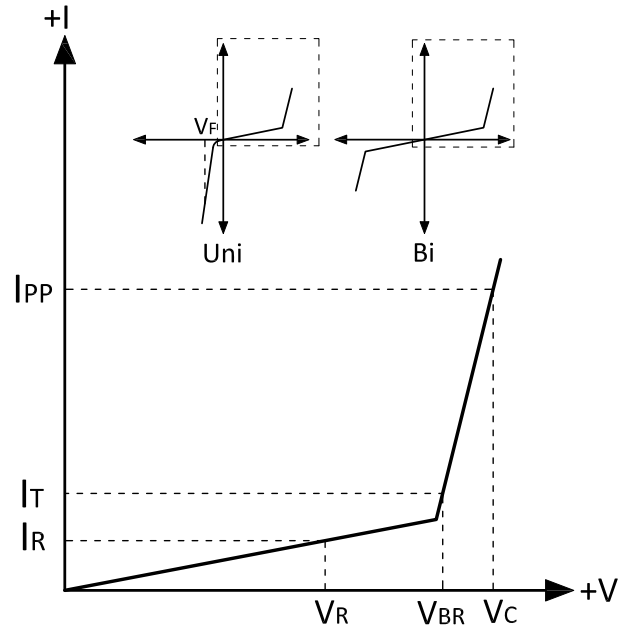


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Electrical Parameters

Parameter	Definition
C_J	Junction Capacitance - typical capacitance measured with 0V or V_R bias
I_{PP}	Peak Pulse Current - maximum rated peak impulse current
V_C	Clamping Voltage - Peak voltage measured across the suppressor at a specified I_{ppm}
V_{BR}	Breakdown Voltage - Maximum voltage that flows though the TVS at a specified test current (I_T)
I_R	Leakage Current - maximum peak off-state current measured at V_R
V_R	Peak Off-state Voltage - maximum voltage that can be applied while maintaining off state



Absolute Maximum Ratings ($T_A=+25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Value	Units
Peak Pulse Power Dissipation(Note1)	P_{PPM}	8000	W
Steady State Power Dissipation (Note2)	P_D	8	W
Peak Forward Surge Current (Note3)	I_{FSM}	400	A
Maximum Instantaneous Forward Voltage at 100A (Note4)	V_{FM}	3.5/5	V
Typical Thermal Resistance Junction to Lead	$R_{\theta JL}$	8	$^{\circ}\text{C/W}$
Typical Thermal Resistance Junction to Ambient	$R_{\theta JA}$	40	$^{\circ}\text{C/W}$
Operating Junction Temperature Range	T_J	-55 to 150	$^{\circ}\text{C}$
Storage Temperature Range	T_{SJG}	-55 to 150	$^{\circ}\text{C}$

Notes:

- (1) Non-repetitive current pulse , 10/1000us Waveform.
- (2) Infinite Heat Sink at $T_L=75^{\circ}\text{C}$, at 0.375"(9.5mm) lead length, P.C.B. mounted.
- (3) Measured on 8.3ms single half sine wave or equivalent square wave, duty cycle=4 per minute maximum.
- (4) For Unidirectional Only, $V_{FW}<3.5\text{V}$ for $V_{BR} \leq 200\text{V}$ and $V_{FM}<5.0\text{V}$ for $V_{BR} \geq 201\text{V}$.



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Absolute Maximum Ratings ($T_A=+25^{\circ}\text{C}$, unless otherwise noted)

Part Number		Reverse Stand-Off Voltage V_R	Breakdown Voltage $V_{BR}@ I_T$		Test Current I_T	Maximum Clamping Voltage $V_C@ I_{pp}$	Maximum Peak Pulse Current I_{pp}	Maximum Reverse Leakage $I_R@ V_R$
(Uni)	(Bi)	(V)	Min.(V)	Max.(V)	(mA)	(V)	(A)	(μA)
8KP5.0AN	8KP5.0CAN	5	6.4	7	50	9.2	887	5000
8KP6.0AN	8KP6.0CAN	6	6.67	7.37	50	10.3	792	5000
8KP6.5AN	8KP6.5CAN	6.5	7.22	7.98	50	11.2	729	2000
8KP7.0AN	8KP7.0CAN	7	7.78	8.6	50	12	680	1000
8KP7.5AN	8KP7.5CAN	7.5	8.33	9.21	5	12.9	632	250
8KP8.0AN	8KP8.0CAN	8	8.89	9.83	5	13.6	600	150
8KP8.5AN	8KP8.5CAN	8.5	9.44	10.4	5	14.4	567	50
8KP9.0AN	8KP9.0CAN	9	10	11.1	5	15.4	530	20
8KP10AN	8KP10CAN	10	11.1	12.3	5	17	480	15
8KP11AN	8KP11CAN	11	12.2	13.5	5	18.2	448	2
8KP12AN	8KP12CAN	12	13.3	14.7	5	19.9	410	2
8KP13AN	8KP13CAN	13	14.4	15.9	5	21.5	380	2
8KP14AN	8KP14CAN	14	15.6	17.2	5	23.2	352	2
8KP15AN	8KP15CAN	15	16.7	18.5	5	24.4	334	2
8KP16AN	8KP16CAN	16	17.8	19.7	5	26	314	2
8KP17AN	8KP17CAN	17	18.9	20.9	5	27.6	296	2
8KP18AN	8KP18CAN	18	20	22.1	5	29.2	280	2
8KP20AN	8KP20CAN	20	22.2	24.5	5	32.4	252	2
8KP22AN	8KP22CAN	22	24	26.9	5	35.5	230	2
8KP24AN	8KP24CAN	24	26.7	29.5	5	38.9	210	2
8KP26AN	8KP26CAN	26	28.9	31.9	5	42.1	194	2
8KP28AN	8KP28CAN	28	31.1	34.4	5	45.4	180	2
8KP30AN	8KP30CAN	30	33.3	36.8	5	48.4	169	2
8KP33AN	8KP33CAN	33	36.7	40.6	5	53.3	153	2
8KP36AN	8KP36CAN	36	40	44.2	5	58.1	140	2
8KP40AN	8KP40CAN	40	44.4	49.1	5	64.5	127	2
8KP43AN	8KP43CAN	43	47.8	52.8	5	69.4	118	2
8KP45AN	8KP45CAN	45	50	55.3	5	72.7	112	2
8KP48AN	8KP48CAN	48	53.3	58.9	5	77.4	105	2
8KP51AN	8KP51CAN	51	56.7	62.7	5	82.4	99	2

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Part Number		Reverse Stand-Off Voltage V_R	Breakdown Voltage $V_{BR}@ I_T$		Test Current I_T	Maximum Clamping Voltage $V_C@ I_{PP}$	Maximum Peak Pulse Current I_{PP}	Maximum Reverse Leakage $I_R@ V_R$
(Uni)	(Bi)	(V)	Min.(V)	Max.(V)	(mA)	(V)	(A)	(uA)
8KP54AN	8KP54CAN	54	60	66.3	5	87.1	94	2
8KP58AN	8KP58CAN	58	64.4	71.2	5	93.6	87	2
8KP60AN	8KP60CAN	60	66.7	73.7	5	96.8	84	2
8KP64AN	8KP64CAN	64	71.1	78.6	5	103	79	2
8KP70AN	8KP70CAN	70	77.8	86	5	113	72	2
8KP75AN	8KP75CAN	75	83.3	92.1	5	121	67	2
8KP78AN	8KP78CAN	78	86.7	95.8	5	126	65	2
8KP85AN	8KP85CAN	85	94.4	104	5	137	60	2
8KP90AN	8KP90CAN	90	100	111	5	146	56	2
8KP100AN	8KP100CAN	100	110	123	5	162	50	2
8KP110AN	8KP110CAN	110	122	135	5	177	46	2
8KP120AN	8KP120CAN	120	133	147	5	193	42	2
8KP130AN	8KP130CAN	130	144	159	5	209	39.0	2
8KP150AN	8KP150CAN	150	167	185	5	243	33.6	2
8KP160AN	8KP160CAN	160	178	197	5	259	31.5	2
8KP170AN	8KP170CAN	170	189	209	5	275	29.6	2
8KP180AN	8KP180CAN	180	200	221	5	292	28.0	2
8KP190AN	8KP190CAN	190	211	233	5	310	26.4	2
8KP200AN	8KP200CAN	200	222	246	5	329.2	24.8	2
8KP210AN	8KP210CAN	210	233	258	5	349.5	23.4	2
8KP220AN	8KP220CAN	220	244	270	5	371.1	21.9	2
8KP250AN	8KP250CAN	250	277	306	5	425	19.2	2



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Ratings and Characteristic Curves ($T_A = +25^\circ\text{C}$, unless otherwise noted)

Figure 1: Peak Pulse Power Rating

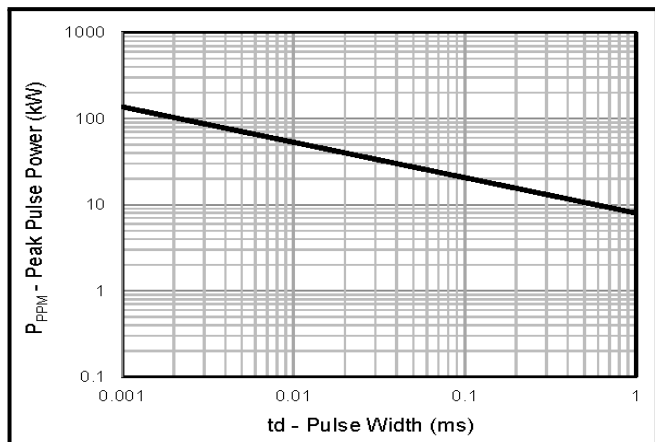


Figure 2: Pulse Derating Curve

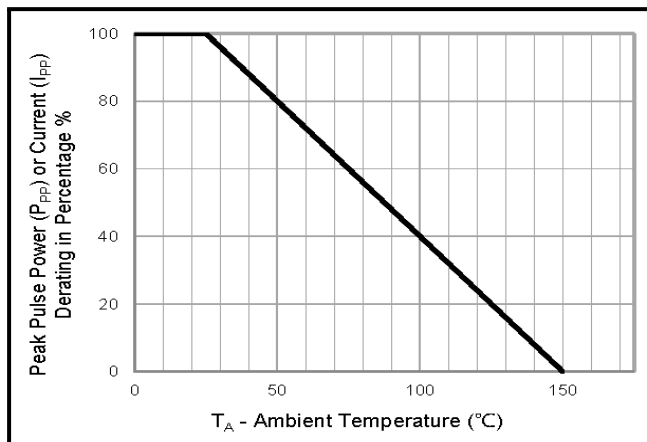


Figure 3: Pulse Waveform

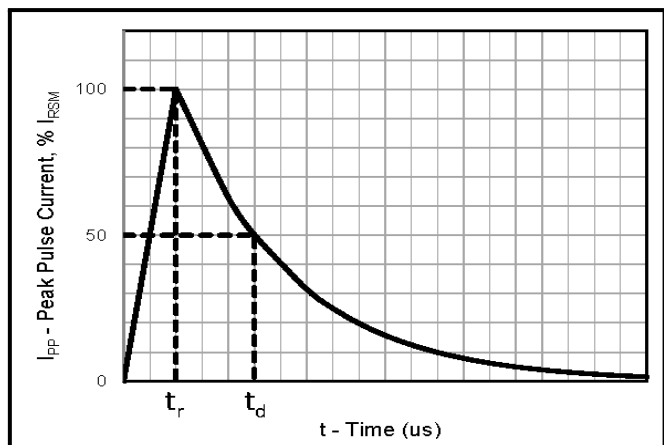


Figure 4: Typical Junction Capacitance

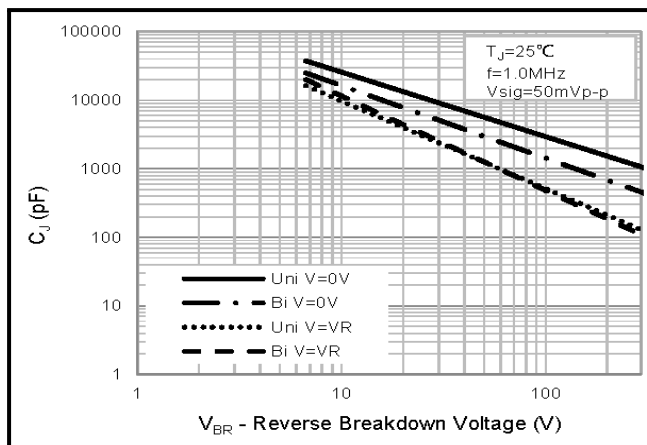


Figure 5: Steady State Power Dissipation Derating

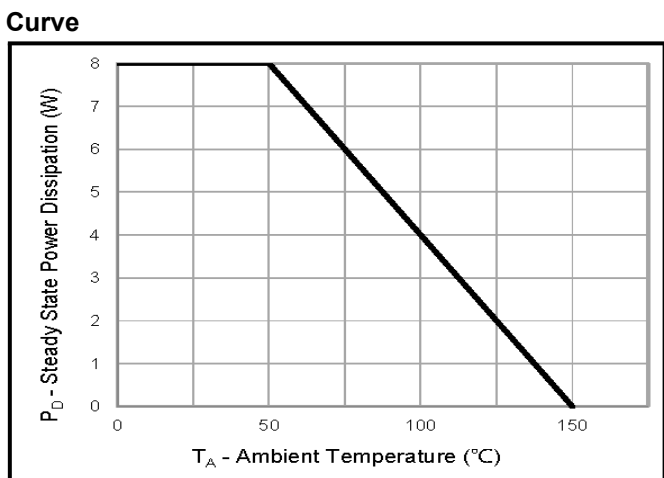
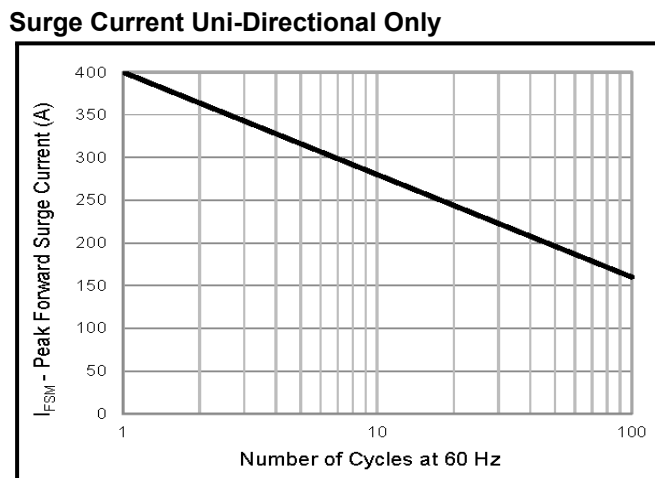


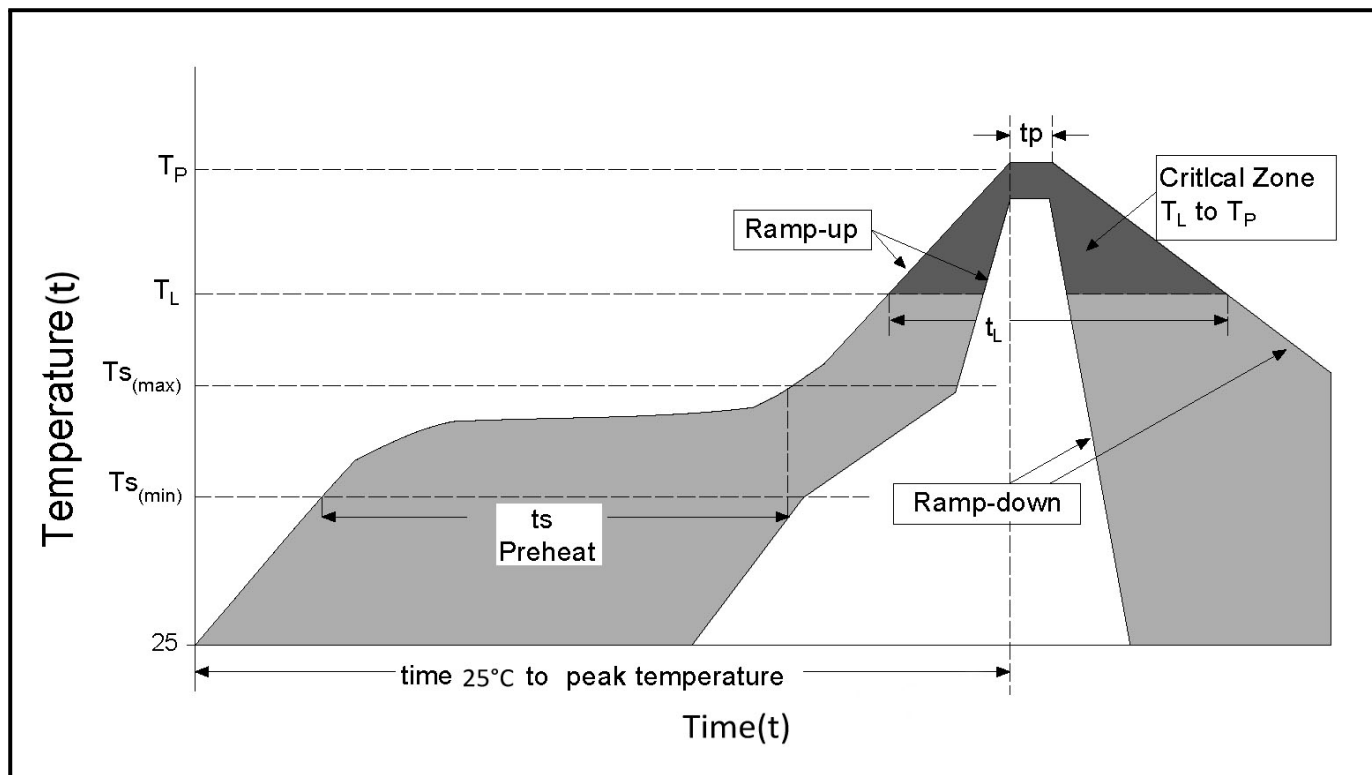
Figure 6: Maximum Non-Repetitive Peak Forward



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Soldering Parameters



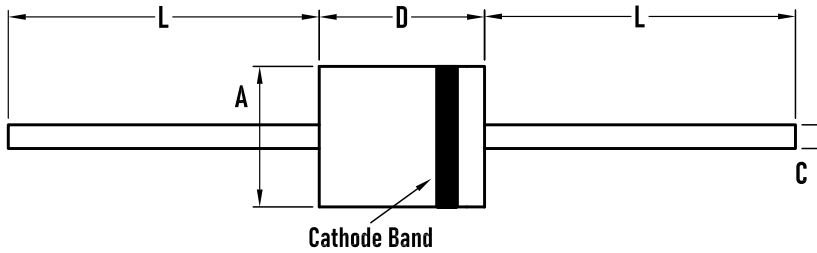
Reflow Condition		Lead-free assembly
Pre Heat	- Temperature Min ($T_{S(min)}$)	150°C
	- Temperature Max ($T_{S(max)}$)	200°C
	- Time (min to max) (t_s)	60 - 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak)		3°C/second max
$T_{S(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_L) (Liquidus)	217°C
	- Time (t_L)	60 -150 secs
Peak Temperature (T_P)		260 ^{+0/-5} °C
Time within 5°C of actual peak Temperature (t_p)		20 - 40 secs
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (t)		8 minutes Max.
Do not exceed		260°C



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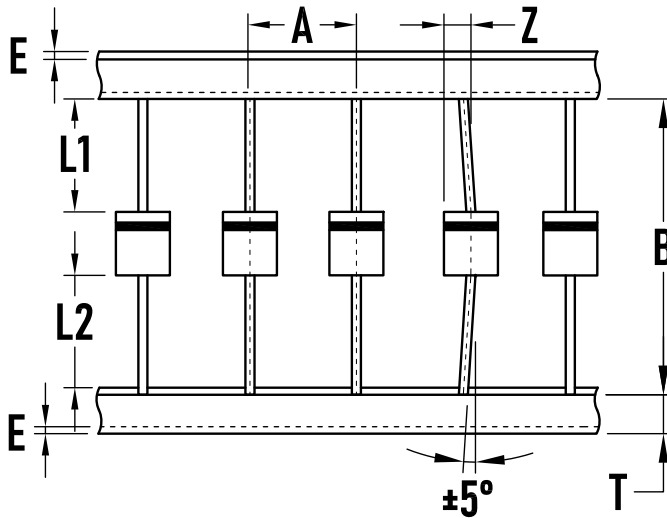
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Package Mechanical Data - P600



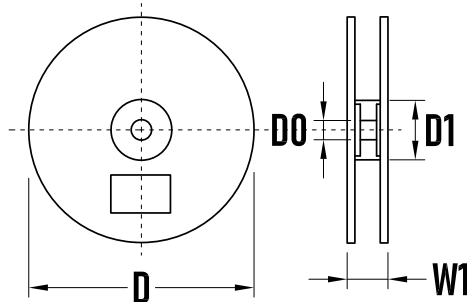
SYMBOL	Inches		MILLIMETER	
	MIN	MAX	MIN	MAX
A	0.339	0.358	8.6	9.1
C	0.048	0.052	1.22	1.32
D	0.339	0.358	8.6	9.1
L	1	—	25.4	—

Packaging Tape-P600



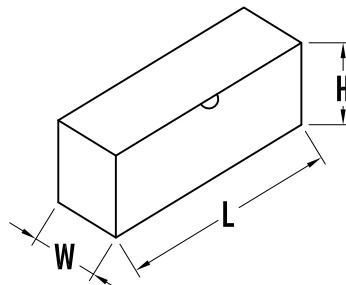
SYMBOL	Dimension(mm)
A	10.0±0.5
B	53.0±1.0
Z	1.2Max.
T	6.0±0.4
E	0.8Max.
L1-L2	1.0Max.

Packaging Reel



SYMBOL	Dimension(mm)
D	330.0±3.0
D0	16.4±2.0
D1	86.0±2.0
W1	76.0±3.0
Quantity	800PCS

Packaging BOX



SYMBOL	Dimension(mm)
L	250.0±5.0
W	75.0±5.0
H	114.0±5.0
Quantity	300PCS

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