BORN SEMICONDUCTOR

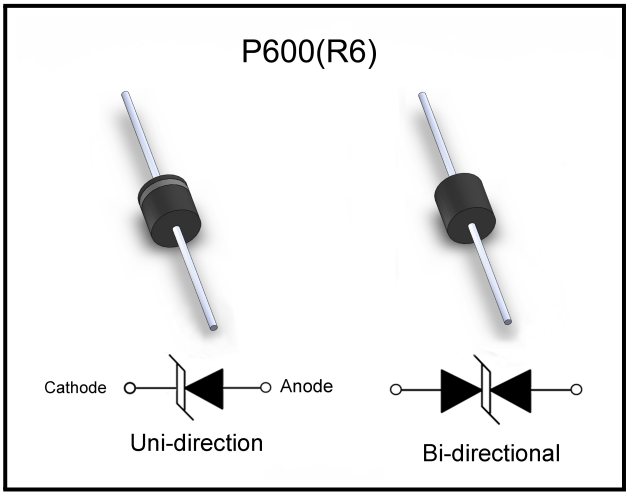
8KP Series

Transient Voltage Suppressor

Features

- Excellent clamping capability
- Low leakage current
- High surge capability
- Glass passivated chip
- Epoxy resin package
- Built-in strain relief
- Will not fatigue
- RoHS Compliant
- IEC 61000-4-2 ±30kV contact ; ±30kV air
- Fast response time:
  typically less than 1.0ps from 0 Volts to V_{BR} min

Package



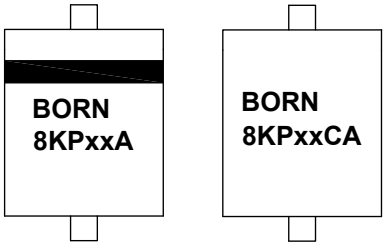
Mechanical Characteristics

- 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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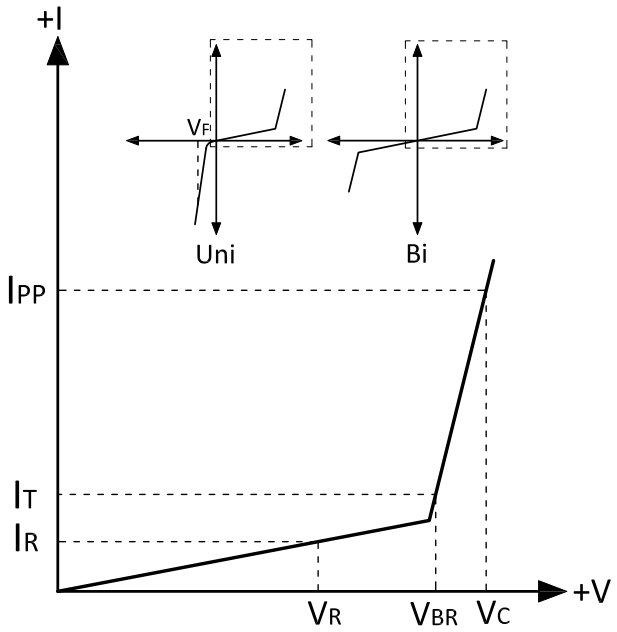
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8KP Series

Transient Voltage Suppressor

Electrical Parameters

Parameter	Definition
C_J	Junction Capacitance - typical capacitance measured with 0V orV_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 Ippm
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°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	°C/W
Typical Thermal Resistance Junction to Ambient	$R_{\theta JA}$	40	°C/W
Operating Junction Temperature Range	T_J	-55 to 150	°C
Storage Temperature Range	T_{SJG}	-55 to 150	°C

Notes:

(1) Non-repetitive current pulse , 10/1000us Waveform.

(2) Infinite Heat Sink at T_L=75°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_{FM}<3.5V for V_{BR} ≤200V and V_{FM}<5.0V for V_{BR}≥201V.

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8KP Series

Transient Voltage Suppressor

Absolute Maximum Ratings (T_A=+25°C, unless otherwise noted)

Part Number		Reverse Stand-Off Votage 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)
8KP5.0A	8KP5.0CA	5	6.4	7	50	9.2	887	5000
8KP6.0A	8KP6.0CA	6	6.67	7.37	50	10.3	792	5000
8KP6.5A	8KP6.5CA	6.5	7.22	7.98	50	11.2	729	2000
8KP7.0A	8KP7.0CA	7	7.78	8.6	50	12	680	1000
8KP7.5A	8KP7.5CA	7.5	8.33	9.21	5	12.9	632	250
8KP8.0A	8KP8.0CA	8	8.89	9.83	5	13.6	600	150
8KP8.5A	8KP8.5CA	8.5	9.44	10.4	5	14.4	567	50
8KP9.0A	8KP9.0CA	9	10	11.1	5	15.4	530	20
8KP10A	8KP10CA	10	11.1	12.3	5	17	480	15
8KP11A	8KP11CA	11	12.2	13.5	5	18.2	448	2
8KP12A	8KP12CA	12	13.3	14.7	5	19.9	410	2
8KP13A	8KP13CA	13	14.4	15.9	5	21.5	380	2
8KP14A	8KP14CA	14	15.6	17.2	5	23.2	352	2
8KP15A	8KP15CA	15	16.7	18.5	5	24.4	334	2
8KP16A	8KP16CA	16	17.8	19.7	5	26	314	2
8KP17A	8KP17CA	17	18.9	20.9	5	27.6	296	2
8KP18A	8KP18CA	18	20	22.1	5	29.2	280	2
8KP20A	8KP20CA	20	22.2	24.5	5	32.4	252	2
8KP22A	8KP22CA	22	24	26.9	5	35.5	230	2
8KP24A	8KP24CA	24	26.7	29.5	5	38.9	210	2
8KP26A	8KP26CA	26	28.9	31.9	5	42.1	194	2
8KP28A	8KP28CA	28	31.1	34.4	5	45.4	180	2
8KP30A	8KP30CA	30	33.3	36.8	5	48.4	169	2
8KP33A	8KP33CA	33	36.7	40.6	5	53.3	153	2
8KP36A	8KP36CA	36	40	44.2	5	58.1	140	2
8KP40A	8KP40CA	40	44.4	49.1	5	64.5	127	2
8KP43A	8KP43CA	43	47.8	52.8	5	69.4	118	2
8KP45A	8KP45CA	45	50	55.3	5	72.7	112	2
8KP48A	8KP48CA	48	53.3	58.9	5	77.4	105	2
8KP51A	8KP51CA	51	56.7	62.7	5	82.4	99	2

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8KP Series

Transient Voltage Suppressor

Part Number		Reverse Stand-Off Votage 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)
8KP54A	8KP54CA	54	60	66.3	5	87.1	94	2
8KP58A	8KP58CA	58	64.4	71.2	5	93.6	87	2
8KP60A	8KP60CA	60	66.7	73.7	5	96.8	84	2
8KP64A	8KP64CA	64	71.1	78.6	5	103	79	2
8KP70A	8KP70CA	70	77.8	86	5	113	72	2
8KP75A	8KP75CA	75	83.3	92.1	5	121	67	2
8KP78A	8KP78CA	78	86.7	95.8	5	126	65	2
8KP85A	8KP85CA	85	94.4	104	5	137	60	2
8KP90A	8KP90CA	90	100	111	5	146	56	2
8KP100A	8KP100CA	100	110	123	5	162	50	2
8KP110A	8KP110CA	110	122	135	5	177	46	2
8KP120A	8KP120CA	120	133	147	5	193	42	2
8KP130A	8KP130CA	130	144	159	5	209	39.0	2
8KP150A	8KP150CA	150	167	185	5	243	33.6	2
8KP160A	8KP160CA	160	178	197	5	259	31.5	2
8KP170A	8KP170CA	170	189	209	5	275	29.6	2
8KP180A	8KP180CA	180	200	221	5	292	28.0	2
8KP190A	8KP190CA	190	211	233	5	310	26.4	2
8KP200A	8KP200CA	200	222	246	5	329.2	24.8	2
8KP210A	8KP210CA	210	233	258	5	349.5	23.4	2
8KP220A	8KP220CA	220	244	270	5	371.1	21.9	2
8KP250A	8KP250CA	250	277	306	5	425	19.2	2

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Transient Voltage Suppressor

Ratings and Characteristic Curves (T_A=+25°C, unless otherwise noted)

Figure 1: Peak Pulse Power Rating

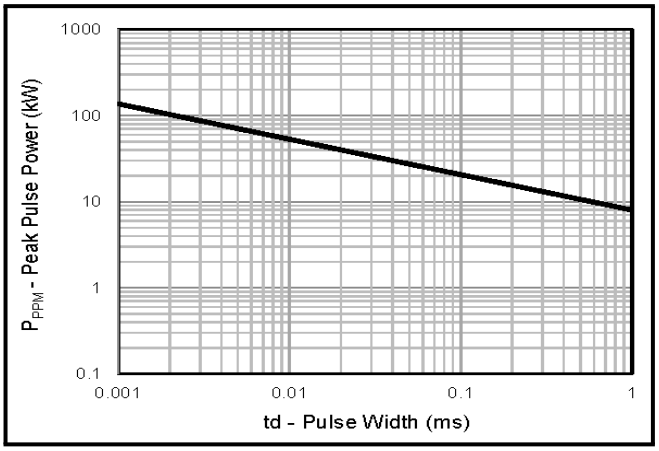


Figure 2: Pulse Derating Curve

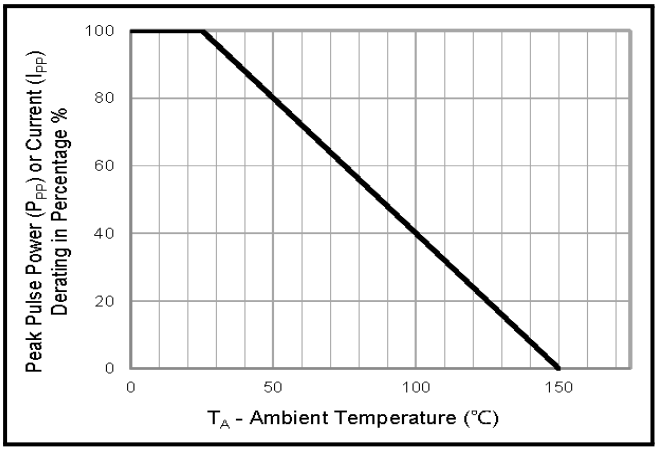


Figure 3: Pulse Waveform

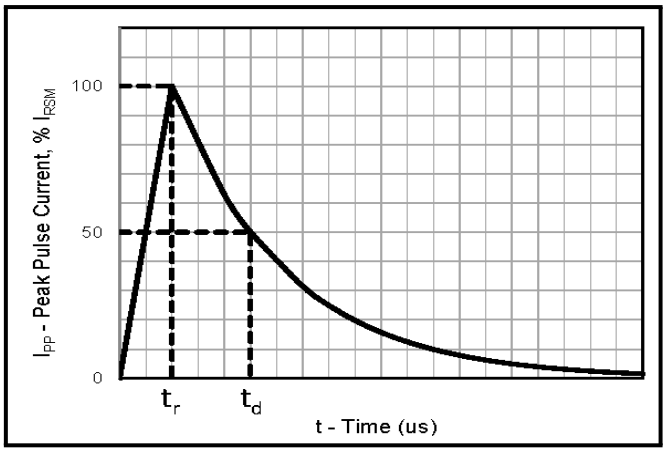


Figure 4 : Typical Junction Capacitance

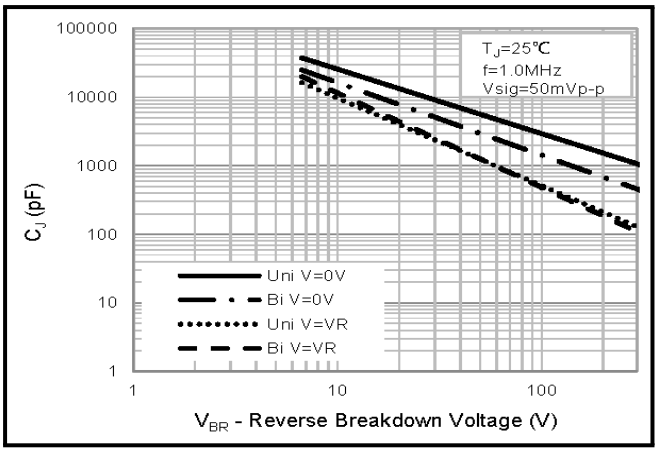


Figure 5: Steady State Power Dissipation Derating Curve

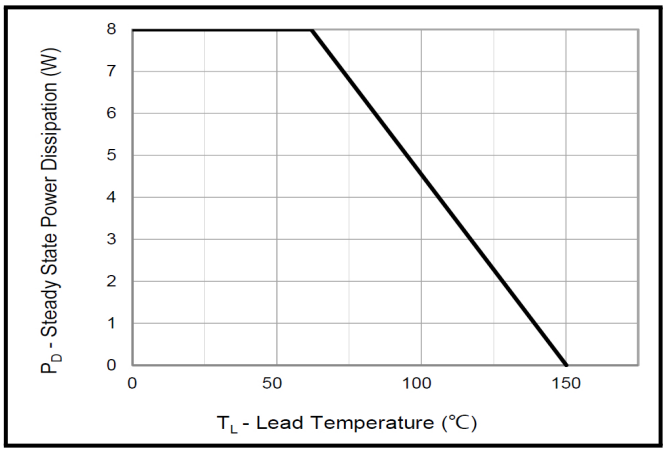
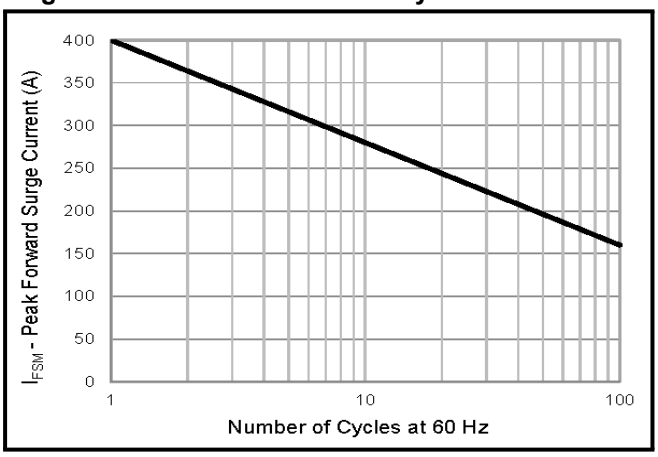


Figure 6 : Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only



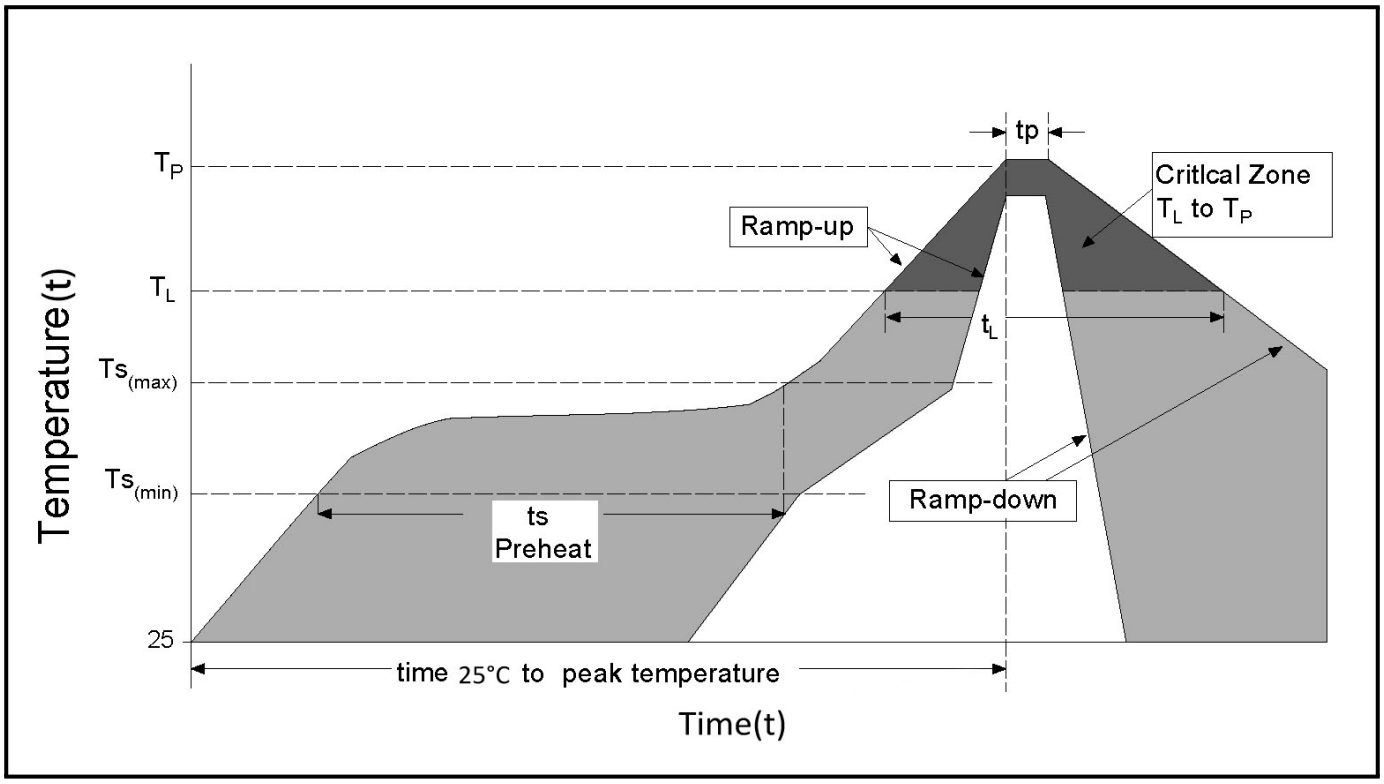
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8KP Series

Transient Voltage Suppressor

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

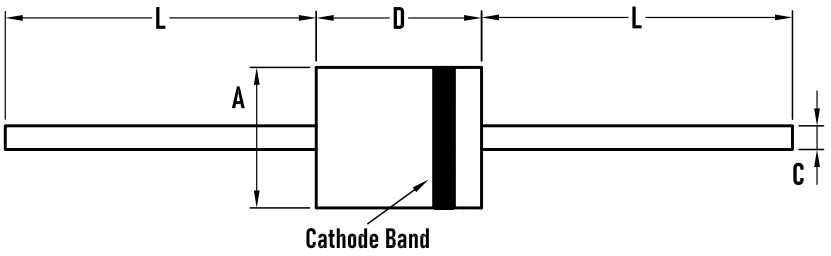
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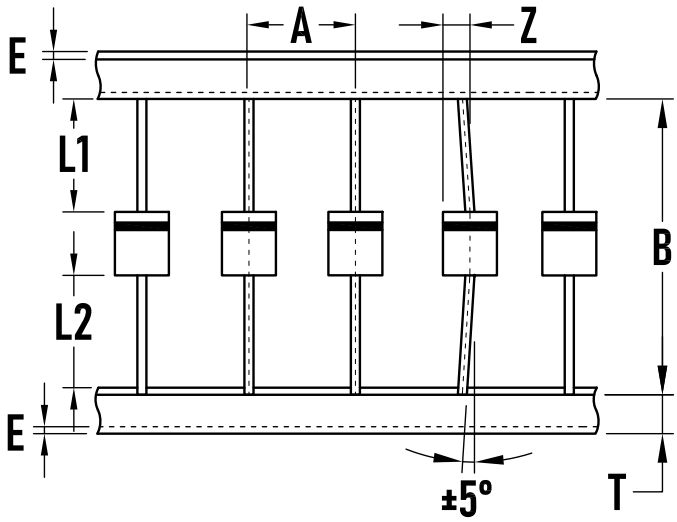
Transient Voltage Suppressor

Package Mechanical Data - P600



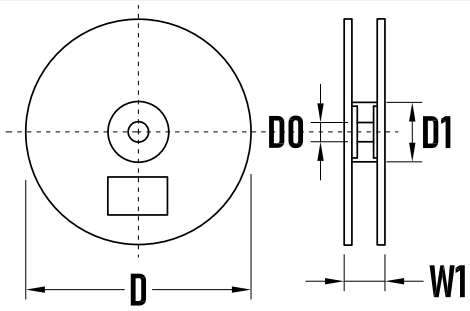
SYMBOL	Inches		MILLIMETER	
	MIN	MAX	MIN	MAX
A	0.339	0.358	8.6	9.1
C	0.048	0.052	1.22	1.32
D	0.339	0.358	8.6	9.1
L	1	–	25.4	–

Packaging Tape-P600



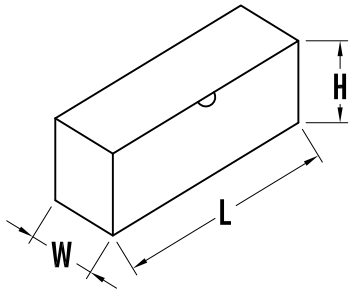
SYMBOL	Dimension(mm)
A	10.0±0.5
B	53.0±1.0
Z	1.2Max.
T	6.0±0.4
E	0.8Max.
L1-L2	1.0Max.

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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