THE DATASHEET OF

15KPA200CA

Technical Data
Data Sheet N0215, Rev. E

15KPA SERIES GLASS PASSIVATED TRANSIENT VOLTAGE SUPPRESSOR

P-600

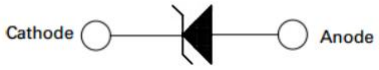
Mechanical Data

- Case: Molded Plastic over glass passivated junction
- Terminals: Plated Axial leads , Solderable per MIL-STD 750, Method 2026
- Polarity: Color Band denoted positive end (cathode) except Bipolar
- Mounting Position: Any
- Weight:2.1 grams(approx.)

Features

- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- Glass Passivated Junction
- 15000W Peak Pulse Power Capability on 10/1000 μs waveform
- Voltage-17.0 to 280 Volts
- Excellent Clamping Capability
- Repetition rate (duty cycle): 0.05%
- Low incremental surge resistance
- Fast Response Time: typically less than 1.0 ps from volts to BV
- High temperature soldering guaranteed: 265℃/10 seconds/.375”, (9.5mm) lead length, 5lbs., (2.3kg) tension
- This is a Pb − Free Device
- All SMC Parts are Traceable to the Wafer Lot
- Additional testing can be offered upon request

Circuit Diagram



Unipolar

Bipolar

Maximum Ratings and Thermal Characteristics@T_A=25°C unless otherwise specified

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation on 10x1000μs Waveform(Note 1)	P_{PPM}	15000	W
Steady State Power Dissipation at T_L=75°C Lead Lengths .375”, (9.5mm)(Note 2)	$P_{M(AV)}$	8.0	W
Peak Forward Surge Current, 8.3ms Sine-Wave Superimposed on Rated Load, (JEDEC Method)(Note 3)	I_{FSM}	400.0	A
Typical Thermal Resistance Junction to Lead	$R_{\theta JL}$	8.0	°C/W
Typical Thermal Resistance Junction to Ambient	$R_{\theta JA}$	40	°C/W
Operating Junction and Storage Temperature Range	T_J,T_{STG}	-55 to 175	°C

Notes: 1. Non-repetitive current pulse, per Fig. 3 and derated above T_A = 25°C per Fig. 2.
2. Mounted on copper pad area of 0.8” × 0.8” (20 × 20mm)
3. 8.3ms single half sine wave, or equivalent square, duty cycle=4 pulses per minute maximum.

Technical Data
Data Sheet N0215, Rev. E

RoHS

Electrical Characteristics @T_A=25°C unless otherwise specified

UNI-POLAR	BI-POLAR	REVERSE STAND-OFF VOLTAGE V_{RWM} (V)	BREAKDOWN VOLTAGE V_{BR} (V) MIN. @I_T	BREAKDOWN VOLTAGE V_{BR} (V) MAX. @I_T	TEST CURRENT I_T(MA)	MAXMUM CLAMPING VOLTAGE @I_{PP} V_C(V)	PEAK PULSE CURRENT I_{PP}(A)	REVERSE LEAKAGE @V_{RWM} I_R(uA)
15KPA17A	15KPA17CA	17	18.99	20.79	50	29.3	515.4	5000
15KPA18A	15KPA18CA	18	20.11	20.01	50	30.9	488.7	5000
15KPA20A	15KPA20CA	20	22.34	24.46	20	34.3	440.2	1500
15KPA22A	15KPA22CA	22	24.57	26.91	10	37.1	407	500
15KPA24A	15KPA24CA	24	26.81	29.35	5	40.7	371	150
15KPA26A	15KPA26CA	26	29.04	31.8	5	44	343.2	50
15KPA28A	15KPA28CA	28	31.28	34.24	5	47.5	317.9	25
15KPA30A	15KPA30CA	30	33.51	36.7	5	50.7	297.8	15
15KPA33A	15KPA33CA	33	36.9	40.4	5	54.7	276.1	2
15KPA36A	15KPA36CA	36	40.2	44	5	59.8	252.5	2
15KPA40A	15KPA40CA	40	44.7	48.90	5	65.8	229.5	2
15KPA43A	15KPA43CA	43	48	52.6	5	69.8	216.3	2
15KPA45A	15KPA45CA	45	50.3	55	5	72.8	207.4	2
15KPA48A	15KPA48CA	48	53.6	58.7	5	77.7	194.3	2
15KPA51A	15KPA51CA	51	57	62.4	5	82.8	182.1	2
15KPA54A	15KPA54CA	54	60.3	66	5	87.7	172.2	2
15KPA58A	15KPA58CA	58	64.8	70.9	5	93.8	161	2
15KPA60A	15KPA60CA	60	67	73.4	5	97.4	155	2
15KPA64A	15KPA64CA	64	71.5	78.3	5	104.2	144.9	2
15KPA70A	15KPA70CA	70	78.2	85.6	5	113.6	132.9	2
15KPA75A	15KPA75CA	75	83.8	91.7	5	122	123.8	2
15KPA78A	15KPA78CA	78	87.1	95.4	5	126.1	119.7	2
15KPA85A	15KPA85CA	85	94.9	104	5	137.6	109.7	2
15KPA90A	15KPA90CA	90	100.5	110.1	5	145.6	103.7	2
15KPA100A	15KPA100CA	100	111.7	122.3	5	161.3	93.6	2
15KPA110A	15KPA110CA	110	122.9	134.5	5	178.6	84.5	2
15KPA120A	15KPA120CA	120	134	146.8	5	192.3	78.5	2
15KPA130A	15KPA130CA	130	145.2	159	5	208.3	72.5	2
15KPA150A	15KPA150CA	150	167.6	183.5	5	241.9	62.4	2
15KPA160A	15KPA160CA	160	178.7	195.7	5	258.6	58.4	2
15KPA170A	15KPA170CA	170	189.9	207.9	5	272.7	55.4	2
15KPA180A	15KPA180CA	180	201.1	220.1	5	288.5	52.3	2
15KPA200A	15KPA200CA	200	223.4	244.6	5	319.1	47.3	2
15KPA220A	15KPA220CA	220	245.7	269.1	5	356	42	2
15KPA240A	15KPA240CA	240	268.1	293.5	5	384.6	39.3	2
15KPA260A	15KPA260CA	260	290.4	318	5	416.7	36.2	2
15KPA280A	15KPA280CA	280	312.8	342.4	5	454.5	33.2	2

For bidirectional type having V_{RWM} of 30 volts and less, the IR limit is double.
For parts without A, the VBR is + 10% and Vc is 5% higher than with A parts

Ratings and Characteristics Curves

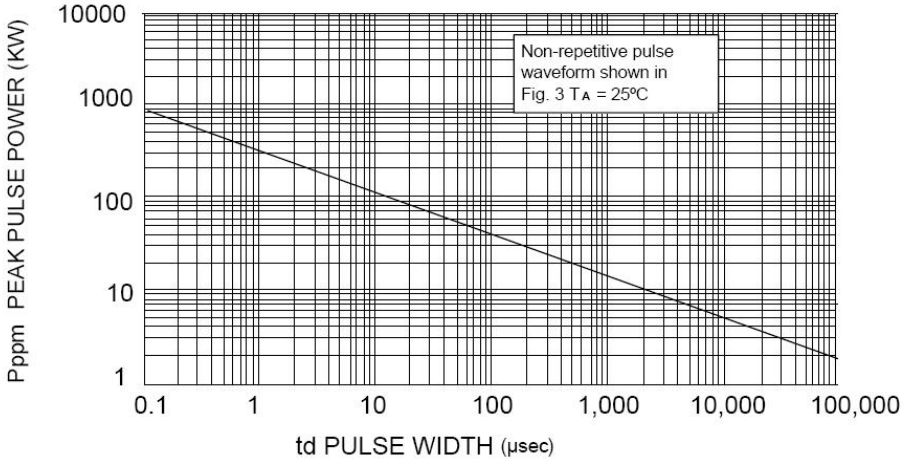


FIG. 1 PEAK PULSE POWER RATING

Fig.2 - Pulse Derating Curve

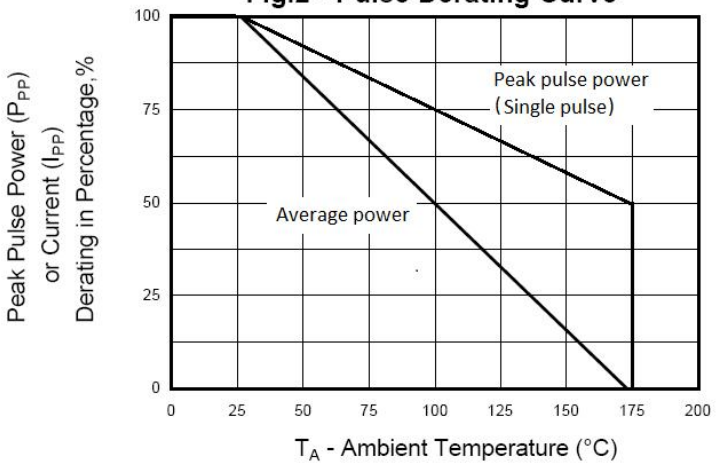
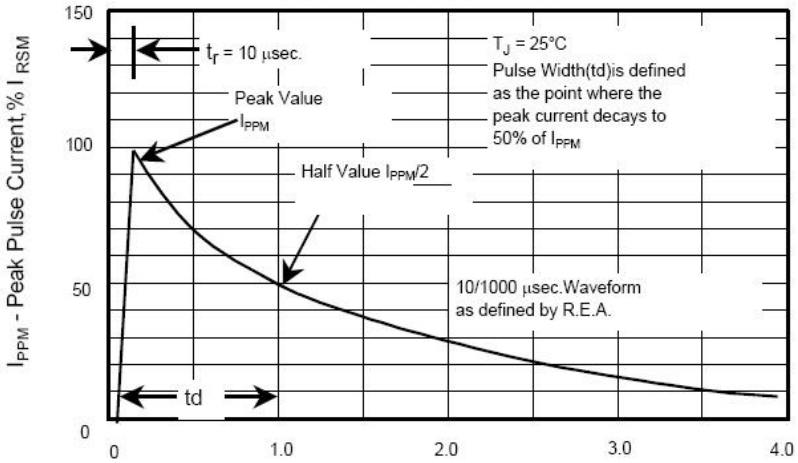


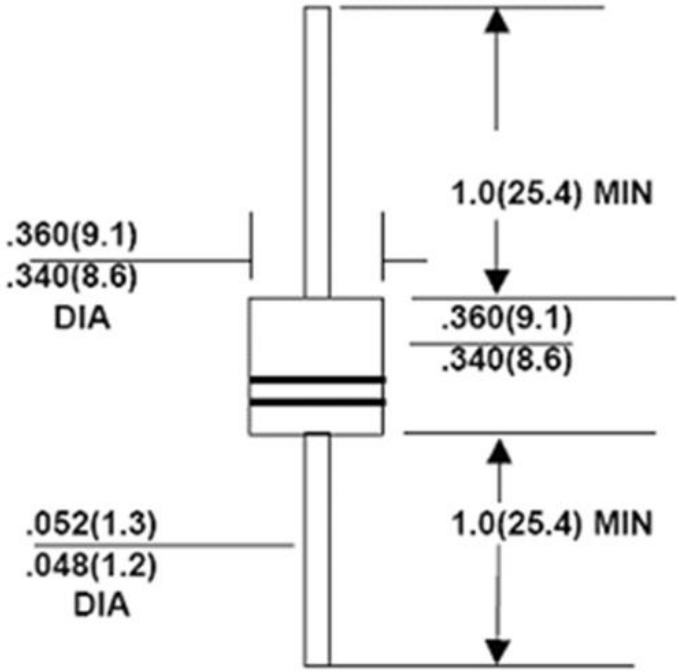
Fig.3 - Pulse Waveform



Technical Data
Data Sheet N0215, Rev. E

RoHS

Mechanical Dimensions P-600(Inches/Millimeters)



Ordering Information

Device	Package	Shipping
15KPA Series	P-600(Pb-Free)	300pcs / tape
15KPA Series TA	P-600(Pb-Free)	300pcs / tape
15KPA Series TR	P-600(Pb-Free)	800pcs / reel

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our tape and reel packaging specification.

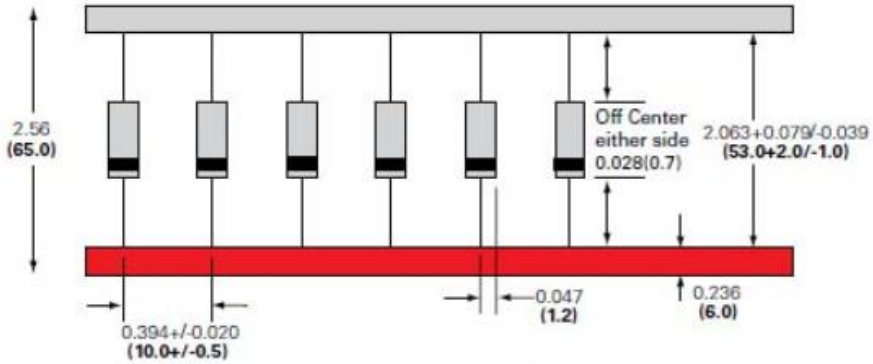
Marking Diagram

Where XXXXX is YYWWL

15KPA17A = Part Name
YY = Year
WW = Week
L = Lot Number

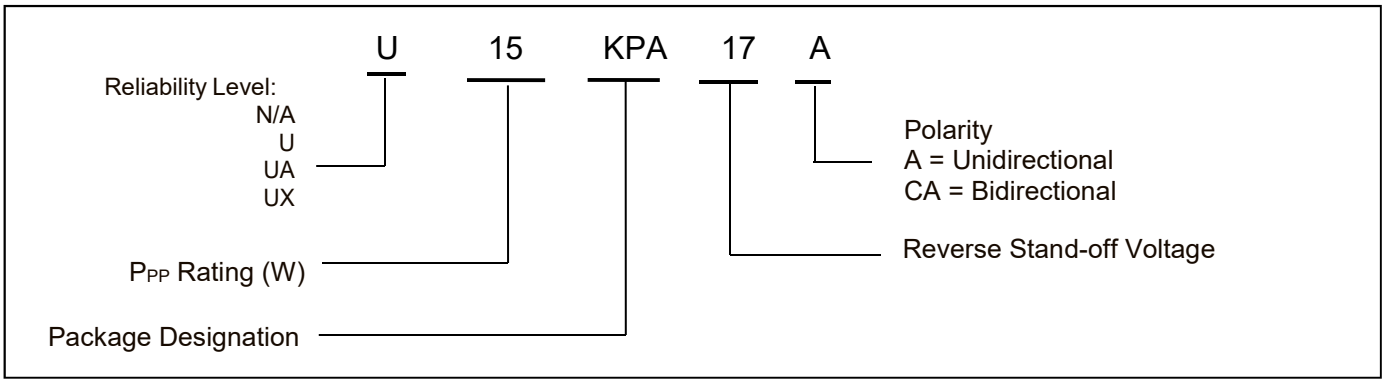
Cautions: Molding resin
Epoxy resin UL:94V-0

Carrier Tape Specification P-600



Technical Data
Data Sheet N0215, Rev. E

Part Number Naming Rule



SMC TVS Screening Options				
Screen or Test Description	**Screening Options**			
Prefix	**1)**	**U**	**UA**	**UX**
100% Wafer Probe	R	R	R	R
3-Sigma lot norm determination **2)**		R	R	R
Surge Test	1x	1x	1x	1x
100% DC Electrical Test Go-No-Go		R	R	R
Temperature Cycling		10 Cycles **3)**	10 Cycles	20 Cycles
Post TC Surge Test		1x **3)**	3x	10x
100% Thermal Impedance **4)**		R	R	R
100% DC Electrical Test			go-no-go	R
HTRB			24 hrs **5)**	96 hrs **6)**
100% DC Electrical Test	go-no-go	go-no-go	go-no-go	R
Delta Calculation				R
PDA Calculation				R
100% Visual Inspection	R	R	R	R
Certificate of Conformance	R	R	R	R
Group A Inspection				O
Group B Inspection				O
Group C Inspection				O

Notes:

R = to be performed. Electrical testing per datasheet limits
O = optional

1) Commercial flow

2) 3-Sima lot norm to remove atypical devices. For detailed requirements see below.

3) Test to be performed on TPK & STPK Series only. The condition is below:
High temp. side: 150 ˚C; Low temp. side: -55 ˚C; Duration time: HT 15min, LT 15 min

4) To be performed any time before completion of screening for unidirectional devices only.

5) 24 hours for unidirectional, 24 hours each side forbidirectional

6) 96 hours for unidirectional, 48 hours each side forbidirectional

Test Procedure to remove Atypical Devices

This procedure will be used in the production testing and applied for each assembly lot when required by the screening option.

- read and record VBR and IR of 200 random samples of a particular assembly lot.
- calculate the average (μ) and standard deviation (σ) for each parameter.
- the testing limit will then be as follows:
    - VBR min = μ(VBR) - 3*σ(VBR)
    - VBR max = μ(VBR) + 3*σ(VBR)
    - IR max = μ(IR) + 3*σ(IR)

Once the testing limit is established for this assembly lot, the 100% production testing will be done based on the tighter limit for the parts of the same assembly lot.

Technical Data
Data Sheet N0215, Rev. E

DISCLAIMER:
1- The information given herein, including the specifications and dimensions, is subject to change without prior notice to improve product characteristics. Before ordering, purchasers are advised to contact the SMC Diode Solutions sales department for the latest version of the datasheet(s).
2- In cases where extremely high reliability is required (such as use in nuclear power control, aerospace and aviation, traffic equipment, medical equipment , and safety equipment) , safety should be ensured by using semiconductor devices that feature assured safety or by means of users' fail-safe precautions or other arrangement .
3- In no event shall SMC Diode Solutions be liable for any damages that may result from an accident or any other cause during operation of the user's units according to the datasheet(s). SMC Diode Solution assumes no responsibility for any intellectual property claims or any other problems that may result from applications of information, products or circuits described in the datasheets.
4- In no event shall SMC Diode Solutions be liable for any failure in a semiconductor device or any secondary damage resulting from use at a value exceeding the absolute maximum rating.
5- No license is granted by the datasheet(s) under any patents or other rights of any third party or SMC Diode Solutions.
6- The datasheet(s) may not be reproduced or duplicated, in any form, in whole or part, without the expressed written permission of SMC Diode Solutions.
7- The products (technologies) described in the datasheet(s) are not to be provided to any party whose purpose in their application will hinder maintenance of international peace and safety nor are they to be applied to that purpose by their direct purchasers or any third party. When exporting these products (technologies), the necessary procedures are to be taken in accordance with related laws and regulations..

Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

- View 15KPA200CA on WIN SOURCE
- SMC Diode Solutions Information

Optimize Your Supply Chain with WIN SOURCE Solutions

- Global Sourcing Solution
- Obsolete Management
- Cost Control Management
- Shortage Management
- Alternative Solution
- Excess Inventory Management