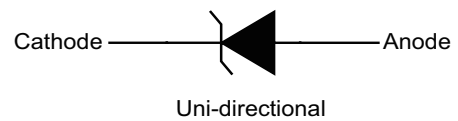


## 1. General description

600W transient voltage suppressor (TVS) in SMA package, designed to protect electronic circuit which induced by lightning surge or other transient voltage situation.

## 2. Features and benefits

- Peak pulse power 600W @ 10/1000 $\mu$ s waveform
- SMA low profile package: less than 1.1 mm
- Excellent clamping capability
- Low incremental surge resistance
- Surface mount package for easy assembly and board space saving
- Typical  $I_R < 1\mu A$  When  $V_R > 12V$
- Fast response time: Typically less than 1.0ps from 0V to BV min
- IEC 61000-4-2 ESD 30kV (Air), 30kV (Contact)
- EFT protection of data lines in accordance with IEC 61000-4-4
- High temperature to reflow soldering guaranteed: 260 $^{\circ}C$ /10sec
- Meet UL94V-0 flammability classification which guaranteed by mold compound
- Meet MSL level1, per J-STD-020
- Lead free lead finish
- Halogen free and RoHS compliant



## 3. Applications

- Power supply protection
- Industrial application
- Power management
- I/O interface protection

## 4. Ordering information

Type number	Package name	Orderable part number	Packing method	Small packing quantity	Package version	Package issue date
P6SMALxxxXX	SMAL	P6SMALxxxXX	Tape and reel	3000	SMALH	18-Oct-2020
eg. P6SMAL5.0A	SMAL	P6SMAL5.0AX	Tape and reel	3000	SMALH	18-Oct-2020

## 5. Absolute maximum ratings

In accordance with the Absolute Maximum Rating System (IEC 60134).

$T_j = 25^{\circ}C$  unless otherwise specified.

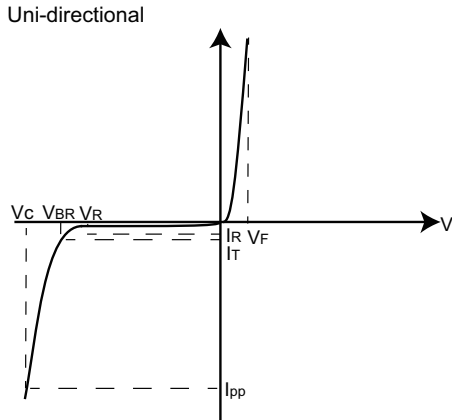
Symbol	Parameter	Conditions	Values	Unit
<b>Absolute maximum rating</b>				
$P_{PPM}$	peak pulse power	[1]	600	W
$P_{M(AV)}$	steady state power dissipation	on infinite heatsink at $T_a = 50^{\circ}C$	3	W
$I_{FSM}$	peak forward surge current	$t_p = 8.3$ ms; single half sine-wave pulse; duty cycle = 4 pulses per minute maximum; unidirectional units only	60	A
$V_F$	forward on-state voltage	$I_F = 25$ A; unidirectional units only	3.5	V
$T_{stg}$	storage temperature range		-65 to 150	$^{\circ}C$
$T_j$	operating temperature range		-65 to 150	$^{\circ}C$

[1] In accordance with IEC 61643-321 (10/1000  $\mu$ s current waveform).

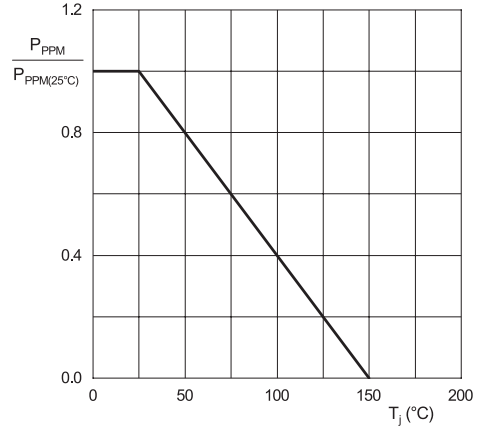
## 6. Characteristics

$T_j = 25\text{ }^\circ\text{C}$  unless otherwise specified.

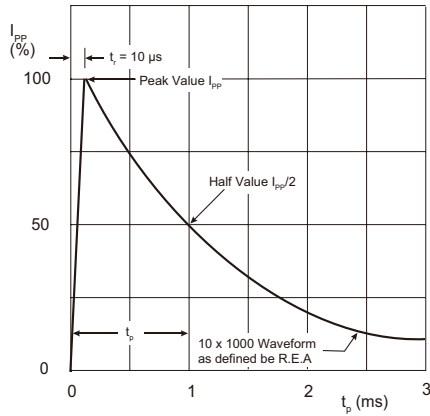
PN	Reverse Stand off Voltage $V_R$ (V)	Breakdown Voltage $V_{BR}$ @ $I_T$ (V)		Test current $I_T$ (mA)	Max. Clamping Voltage $V_C$ @ $I_{PP}$ (V)	Max. Peak Pulse Current $I_{PP}$ (A)	Maximum Reverse Leakage $I_R$ @ $V_R$ ( $\mu\text{A}$ )	Marking
		Min	Max					
P6SMAL5.0A	5	6.4	7	10	9.2	65.3	400	6A005H
P6SMAL6.0A	6	6.67	7.37	10	10.3	58.3	400	6A006H
P6SMAL6.5A	6.5	7.22	7.98	10	11.2	53.6	250	6A06FH
P6SMAL7.0A	7	7.78	8.6	10	12	50	100	6A007H
P6SMAL8.0A	8	8.89	9.83	1	13.6	44.2	50	6A008H
P6SMAL9.0A	9	10	11.1	1	15.4	39	10	6A009H
P6SMAL10A	10	11.1	12.3	1	17	35.3	5	6A010H
P6SMAL11A	11	12.2	13.5	1	18.2	33	1	6A011H
P6SMAL12A	12	13.3	14.7	1	19.9	30.2	1	6A012H
P6SMAL13A	13	14.4	15.9	1	21.5	28	1	6A013H
P6SMAL14A	14	15.6	17.2	1	23.2	25.9	1	6A014H
P6SMAL15A	15	16.7	18.5	1	24.4	24.6	1	6A015H
P6SMAL16A	16	17.8	19.7	1	26	23.1	1	6A016H
P6SMAL17A	17	18.9	20.9	1	27.6	21.8	1	6A017H
P6SMAL18A	18	20	22.1	1	29.2	20.6	1	6A018H
P6SMAL20A	20	22.2	24.5	1	32.4	18.6	1	6A020H
P6SMAL22A	22	24.4	26.9	1	35.5	16.9	1	6A022H
P6SMAL24A	24	26.7	29.5	1	38.9	15.5	1	6A024H
P6SMAL26A	26	28.9	31.9	1	42.1	14.3	1	6A026H
P6SMAL28A	28	31.1	34.4	1	45.4	13.3	1	6A028H
P6SMAL30A	30	33.3	36.8	1	48.4	12.4	1	6A030H
P6SMAL33A	33	36.7	40.6	1	53.3	11.3	1	6A033H
P6SMAL36A	36	40	44.2	1	58.1	10.4	1	6A036H
P6SMAL40A	40	44.4	49.1	1	64.5	9.3	1	6A040H
P6SMAL43A	43	47.8	52.8	1	69.4	8.7	1	6A043H
P6SMAL45A	45	50	55.3	1	72.7	8.3	1	6A045H
P6SMAL48A	48	53.3	58.9	1	77.4	7.8	1	6A048H
P6SMAL51A	51	56.7	62.7	1	82.4	7.3	1	6A051H
P6SMAL54A	54	60	66.3	1	87.1	6.9	1	6A054H
P6SMAL58A	58	64.4	71.2	1	93.6	6.5	1	6A058H
P6SMAL60A	60	66.7	73.7	1	96.8	6.2	1	6A060H
P6SMAL64A	64	71.1	78.6	1	103	5.9	1	6A064H
P6SMAL70A	70	77.8	86	1	113	5.3	1	6A070H
P6SMAL75A	75	83.3	92.1	1	121	5	1	6A075H
P6SMAL78A	78	86.7	95.8	1	126	4.8	1	6A078H
P6SMAL85A	85	94.4	104	1	137	4.4	1	6A085H



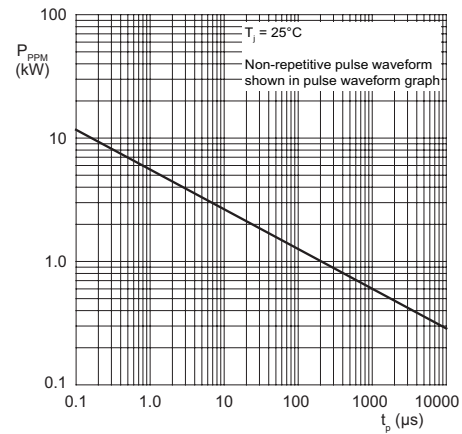
**Fig. 1. I-V curve characteristics; Uni-directional**



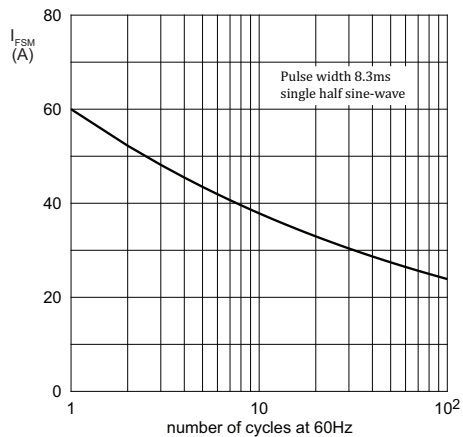
**Fig. 2. Peak pulse power derating curve**



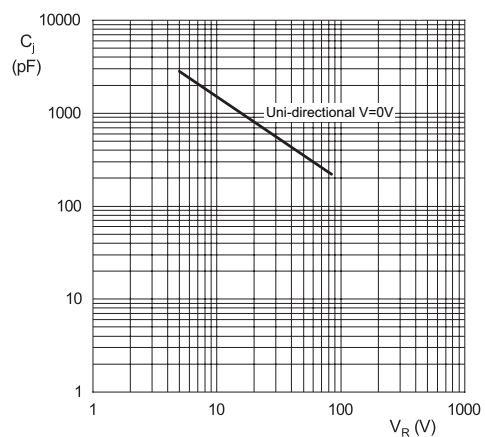
**Fig. 3. Pulse waveform**



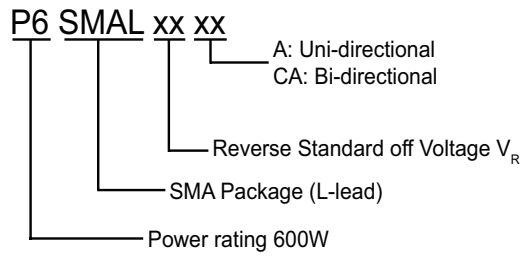
**Fig. 4. Pulse rating curve**



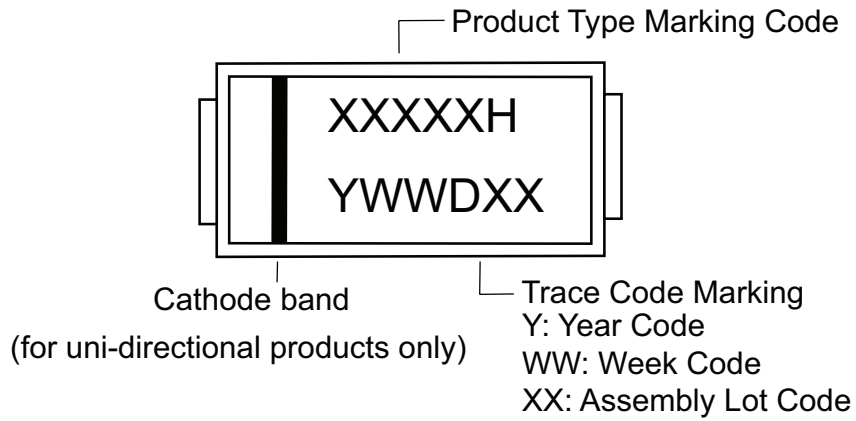
**Fig. 5. Maximum non-repetitive surge current**



**Fig. 6. Typical junction capacitance**

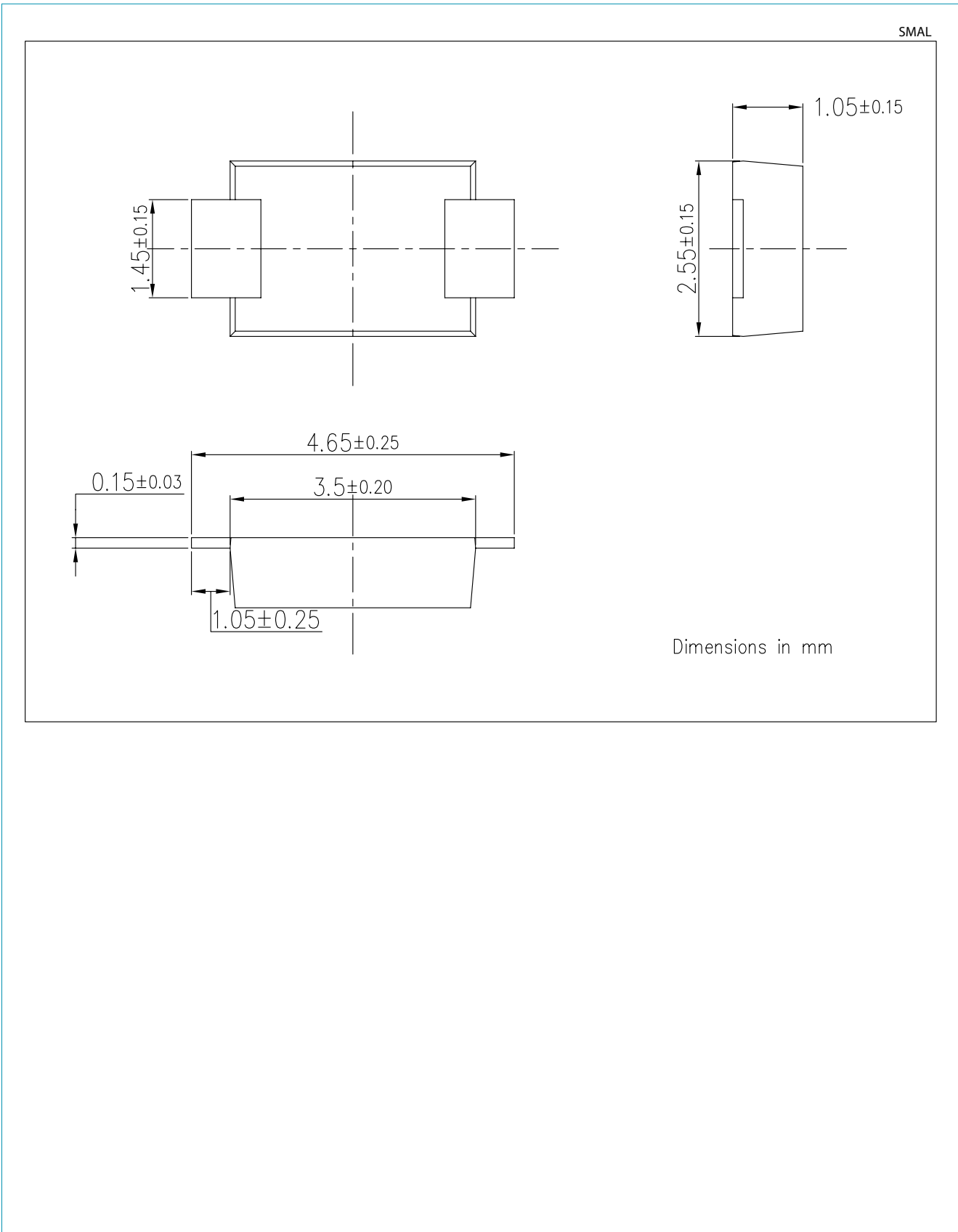


**Fig. 7. Part numbering**



**Fig. 8. Part marking**

### 7. Package outline



## 8. Legal information

### Data sheet status

Document status [1][2]	Product status [3]	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
Product [short] data sheet	Production	This document contains the product specification.

- [1] Please consult the most recently issued document before initiating or completing a design.
- [2] The term 'short data sheet' is explained in section "Definitions".
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