

TPK30KPXX TVS Rectifier

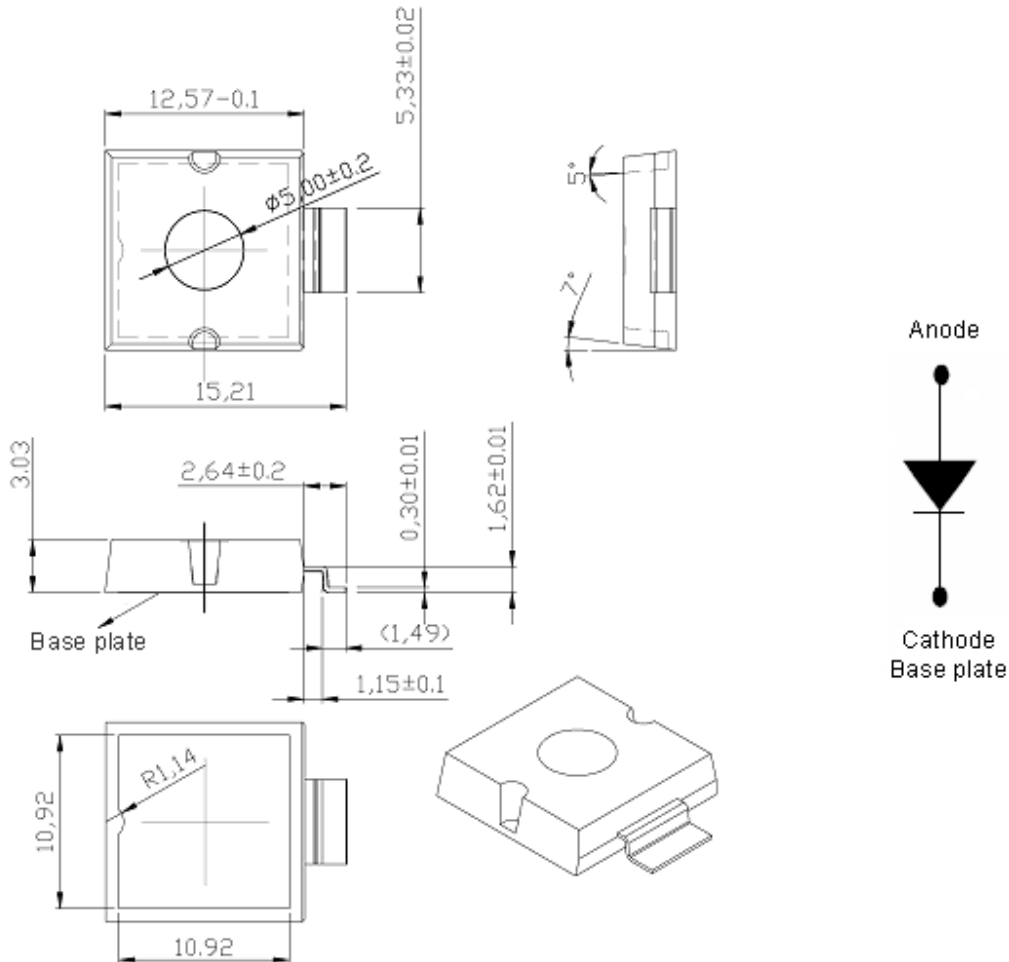
Applications:

- Protection from switching transients and induced RF

Features:

- Low profile surface mount
- Fast response
- Suppresses transients up to 30kW @ 10/1000µs and 200kW @ 8/20µs
- Marking : body marked with TPK30KPXXX
- This is a Pb – Free Device
- Open top for heat dissipation and different connection options
- All SMC parts are traceable to the wafer lot
- All part are 100% tested: electrical, 1x surge test, visual inspection
- Additional testing can be offered upon request

Mechanical Dimensions: In mm



SPD-4

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**Maximum Ratings** @ $T_A=25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Unit
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$
Thermal Resistance Junction to Ambient (Note 1)	$R_{\theta JA}$	50	$^\circ\text{C/W}$
Thermal Resistance Junction to Case	$R_{\theta JC}$	1.0	$^\circ\text{C/W}$
Peak Pulse Power@10/1000 μ s(Note 2)	P_{PP}	30,000	W
$T_{P\text{clamping}}$ (0 volts to $V_{(BR)}$ min) Unidirectional		<100	ps
Forward Clamping Voltage @ 500 Amps (Note 3)	V_{FS}	4.0	V
Forward Surge Current (Note 3)	I_{FSM}	1500	A
Solder Temperature @ 10 s	T_{SP}	260	$^\circ\text{C}$
Steady-State Power dissipation @ $T_A = 25^\circ\text{C}$ @ $T_A = 100^\circ\text{C}$	P_D	2.5 (Note 1) 50 (Note 4)	W

- Note: 1. When mounted on FR4 board with recommended mounting pad(see pad layout).
2. With impulse repetition rate (duty factor) of 0.05% or less.
3. At 8.3ms Single half sine-wave (unidirectional devices only)
4. Case temperature controlled heat sink as specified.
5. See MicroNote 134 for derating when P_{PP} also applying steady-state power.



Technical Data

Green Products

Data Sheet N0051, Rev. F

ELECTRICAL CHARACTERISTICS @ 25 °C

Part Number (Unidirectional)	Part Number (Bidirectional)	Stand-off Voltage V_{wm} (Note 1) (V)	Breakdown Voltage V_{BR} @ I_{BR} (mA) (V)		Clamping Voltage V_c (10*1000) @ I_{PP} (V) Max	Stand By Current I_D @ V_{wm} (μ A) Max	Peak Pulse Current I_{pp} Max	Temperature Coefficient Of V_{BR} mV/°C Max
TPK30KP20	TPK30KP20C	20	22.2-27.1	5	37.6	45	798	19
TPK30KP20A	TPK30KP20CA	20	22.2-24.5	5	34.0	45	882	18
TPK30KP22	TPK30KP22C	22	24.4-29.8	5	40.2	10	747	22
TPK30KP22A	TPK30KP22CA	22	24.4-26.9	5	36.4	10	822	20
TPK30KP24	TPK30KP24C	24	26.7-32.6	5	44.0	10	681	24
TPK30KP24A	TPK30KP24CA	24	26.7-29.5	5	39.8	10	753	22
TPK30KP26	TPK30KP26C	26	28.9-35.3	5	47.6	10	630	27
TPK30KP26A	TPK30KP26CA	26	28.9-31.9	5	43.0	10	696	24
TPK30KP28	TPK30KP28C	28	31.1-38.0	5	51.6	10	582	29
TPK30KP28A	TPK30KP28CA	28	31.1-34.4	5	46.4	10	645	26
TPK 30KP30	TPK 30KP30C	30	33.3-40.7	5	53.8	10	564	36
TPK 30KP30A	TPK 30KP30CA	30	33.3-36.8	5	48.8	10	618	30
TPK30KP33	TPK30KP33C	33	36.7-44.9	5	59.0	10	510	37
TPK30KP33A	TPK30KP33CA	33	36.7-40.6	5	53.3	10	564	35
TPK30KP36	TPK30KP36C	36	40.0-48.9	5	63.4	10	468	40
TPK30KP36A	TPK30KP36CA	36	40.0-44.2	5	58.1	10	516	38
TPK30KP40	TPK30KP40C	40	44.4-54.3	5	71.4	10	420	48
TPK30KP40A	TPK30KP40CA	40	44.4-49.1	5	64.5	10	468	44
TPK30KP43	TPK30KP43C	43	47.8-58.4	5	76.7	10	390	53
TPK30KP43A	TPK30KP43CA	43	47.8-52.8	5	69.4	10	432	50
TPK30KP45	TPK30KP45C	45	50.0-61.1	5	80.3	10	372	54
TPK30KP45A	TPK30KP45CA	45	50.0-55.3	5	72.7	10	414	51
TPK30KP48	TPK30KP48C	48	53.3-65.1	5	85.5	10	348	60
TPK30KP48A	TPK30KP48CA	48	53.3-58.9	5	77.4	10	390	54
TPK30KP51	TPK30KP51C	51	56.7-69.3	5	91.1	10	330	65
TPK30KP51A	TPK30KP51CA	51	56.7-62.7	5	82.4	10	366	58
TPK30KP54	TPK30KP54C	54	60.0-73.3	5	96.3	10	312	68
TPK30KP54A	TPK30KP54CA	54	60.0-66.3	5	87.1	10	342	64
TPK30KP58	TPK30KP58C	58	64.4-78.7	5	103.0	10	294	75
TPK30KP58A	TPK30KP58CA	58	64.4-71.2	5	93.6	10	318	70
TPK30KP60	TPK30KP60C	60	66.7-81.5	5	107.0	10	282	80
TPK30KP60A	TPK30KP60CA	60	66.7-73.7	5	96.8	10	312	72
TPK30KP64	TPK30KP64C	64	71.1-86.9	5	114.0	10	264	85
TPK30KP64A	TPK30KP64CA	64	71.1-78.6	5	103.0	10	294	75

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Technical Data
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Part Number (Unidirectional)	Part Number (Bidirectional)	Stand-off Voltage V_{WM} (Note 1) (V)	Breakdown Voltage V_{BR} @ I_{BR} (mA) (V)		Clamping Voltage V_C (10×1000) @ I_{PP} (V) Max	Stand By Current I_D @ V_{WM} (μA) Max	Peak Pulse Current I_{PP} Max	Temperature Coefficient Of V_{BR} $mV/^\circ C$ Max
TPK30KP70	TPK30KP70C	70	77.8-95.1	5	125	10	240	93
TPK30KP70A	TPK30KP70CA	70	77.8-86.0	5	113	10	264	84
TPK30KP75	TPK30KP75C	75	83.3-102.0	5	134	10	222	100
TPK30KP75A	TPK30KP75CA	75	83.3-92.1	5	121	10	246	90
TPK30KP78	TPK30KP78C	78	86.7-106.0	5	139	10	216	104
TPK30KP78A	TPK30KP78CA	78	86.7-95.8	5	126	10	240	95
TPK30KP85	TPK30KP85C	85	94.4-115.0	5	151	10	198	115
TPK30KP85A	TPK30KP85CA	85	94.4-104.0	5	137	10	216	104
TPK30KP90	TPK30KP90C	90	100-122	5	160	10	186	120
TPK30KP90A	TPK30KP90CA	90	100-111	5	146	10	204	109
TPK30KP100	TPK30KP100C	100	111-136	5	179	10	168	134
TPK30KP100A	TPK30KP100CA	100	111-123	5	162	10	186	122
TPK30KP110	TPK30KP110C	110	122-149	5	196	10	156	147
TPK30KP110A	TPK30KP110CA	110	122-135	5	177	10	168	132
TPK30KP120	TPK30KP120C	120	133-163	5	214	10	140	161
TPK30KP120A	TPK30KP120CA	120	133-147	5	193	10	156	145
TPK30KP130	TPK30KP130C	130	144-176	5	231	10	130	174
TPK30KP130A	TPK30KP130CA	130	144-159	5	209	10	142	157
TPK30KP150	TPK30KP150C	150	167-204	5	268	10	112	202
TPK30KP150A	TPK30KP150CA	150	167-185	5	243	10	124	183
TPK30KP160	TPK30KP160C	160	178-218	5	287	10	104	216
TPK30KP160A	TPK30KP160CA	160	178-197	5	259	10	116	195
TPK30KP170	TPK30KP170C	170	189-231	5	304	10	98	229
TPK30KP170A	TPK30KP170CA	170	189-209	5	275	10	110	207
TPK30KP180	TPK30KP180C	180	200-244	5	321	10	94	242
TPK30KP180A	TPK30KP180CA	180	200-221	5	291	10	104	219
TPK30KP200	TPK30KP200C	200	222-271	5	356	10	84	269
TPK30KP200A	TPK30KP200CA	200	222-245	5	322	10	94	243
TPK30KP220A	TPK30KP220CA	220	245-271	5	356	10	84	269
TPK30KP260A	TPK30KP260CA	260	289-320	5	419	10	71	318
TPK30KP280A	TPK30KP280CA	280	311-345	5	451	10	66	344
TPK30KP300A	TPK30KP300CA	300	333-369	5	483	10	62	368
TPK30KP350A	TPK30KP350CA	350	389-431	5	564	10	53	430
TPK30KP400A	TPK30KP400CA	400	444-492	5	644	10	46	490

NOTE 1: Transient Voltage Suppressors are normally selected with reverse "Stand Off Voltage" V_{WM} which should be equal to or greater than the dc or continuous peak operating voltage level.

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SYMBOLS & DEFINITIONS			
Symbol	Definition	Symbol	Definition
V_{WM}	Working Peak(Standoff) Voltage	I_{PP}	Peak Pulse Current
$V_{(BR)}$	Breakdown Voltage	V_C	Claming Voltage
I_D	Standby Current	$I_{(BR)}$	Breakdown Current for $V_{(BR0)}$

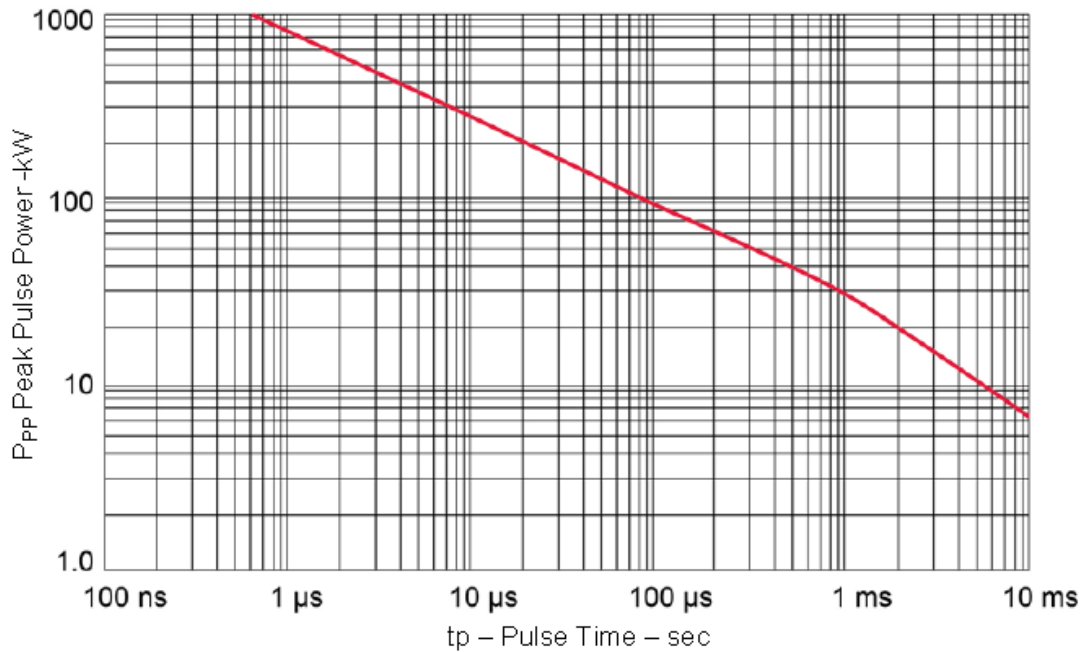


FIGURE 1
Peak Pulse Power vs. Pulse Time

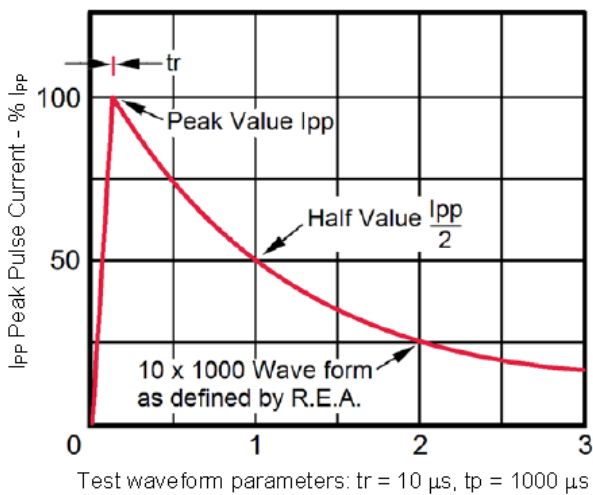


Figure 2
Pulse Waveform

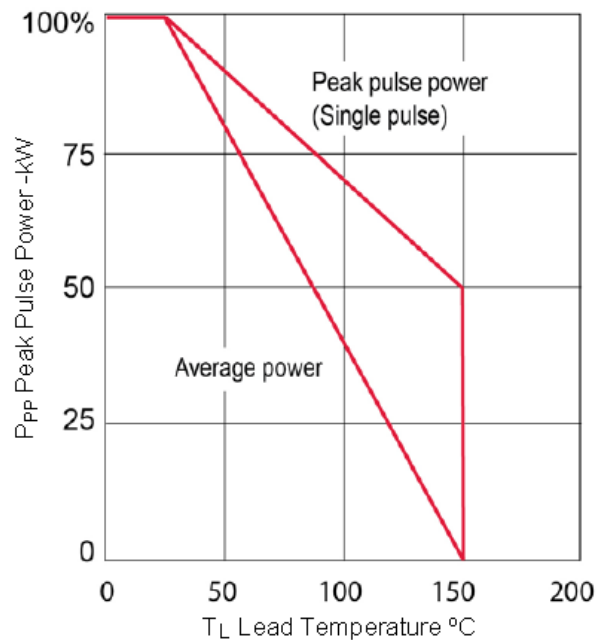


FIGURE 3
Derating Curve



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