Transient Voltage Suppressors

FEATURES

- P600 glass passivated chip junction
- Available in uni-directional polarity only
- Peak pulse power:
  –600 W (10/1000 μs)
- Stand off voltage range: from 5.8 V to 459 V
- Unidirectional and bidirectional types
- Low leakage current:
- Operating $T_{j\ max}$: 150 °C
- JEDEC registered package outline
- Resin meets UL 94, V0

DO-204AC(DO-15)

Complies with the following standards

- Low incremental surge resistance.
- Excellent clamping capability.
- Color band denoted cathode except bidirectional.
- Typical I_R less than 1μA above 11V.
- High temperature wave soldering: 265℃/10s at terminals.
- Plastic package has underwriters laboratory flammability 94V-0.
- 600W peak pulse power capability at 10/1000μs waveform.
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260℃.
- Terminal: solder plated, solderable per J-STD-002.
- Fast response time: typically less than 1.0ps from 0V to V_{BR} min.
- UL 497B item recognized. (File No.:E480698).
- IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact).

ABSOLUTE MAXIMUM RATINGS (T_A=25℃, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Operating junction and storage temperature range	T_J,T_{STG}	-55 to +175	℃
Steady state power dissipation at T_L=75℃	$P_{M(AV)}$	5.0	W
Peak pulse power dissipation at 10/1000μs waveform	P_{PP}	600	W
Maximum instantaneous forward voltage at 50A for unidirectional	V_F	5.0	V
Peak forward surge current, 8.3ms single half sine-wave for unidirectional only (NOTE 1)	I_{FSM}	100	A
Typical thermal resistance junction to lead	$R_{\theta JL}$	20	℃/W
Typical thermal resistance junction to ambient	$R_{\theta JA}$	75	℃/W

Notes：

1．Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum

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Part Number		Reverse Stand off Voltage V_{RWM}	Breakdown Voltage V_{BR}(Volts)@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_{RWM}
UNI-POLAR	BI-POLAR	(V)	MIN	MAX	(mA)	(V)	(A)	(μA)
0K6P6V8V	0K6P6V8B	5.80	6.45	7.14	10	10.5	57.1	800
0K6P7V5V	0K6P7V5B	6.40	7.13	7.88	10	11.3	53.1	500
0K6P8V2V	0K6P8V2B	7.02	7.79	8.61	10	12.1	49.6	200
0K6P9V1V	0K6P9V1B	7.78	8.65	9.55	1.0	13.4	44.8	50
0K6P10V	0K6P10B	8.55	9.50	10.5	1.0	14.5	41.4	10
0K6P11V	0K6P11B	9.40	10.5	11.6	1.0	15.6	38.5	5.0
0K6P12V	0K6P12B	10.2	11.4	12.6	1.0	16.7	35.9	5.0
0K6P13V	0K6P13B	11.1	12.4	13.7	1.0	18.2	33.0	5.0
0K6P15V	0K6P15B	12.8	14.3	15.8	1.0	21.2	28.3	1.0
0K6P16V	0K6P16B	13.6	15.2	16.8	1.0	22.5	26.7	1.0
0K6P18V	0K6P18B	15.3	17.1	18.9	1.0	25.2	23.8	1.0
0K6P20V	0K6P20B	17.1	19.0	21.0	1.0	27.7	21.7	1.0
0K6P22V	0K6P22B	18.8	20.9	23.1	1.0	30.6	19.6	1.0
0K6P24V	0K6P24B	20.5	22.8	25.2	1.0	33.2	18.1	1.0
0K6P27V	0K6P27B	23.1	25.7	28.4	1.0	37.5	16.0	1.0
0K6P30V	0K6P30B	25.6	28.5	31.5	1.0	41.4	14.5	1.0
0K6P33V	0K6P33B	28.2	31.4	34.7	1.0	45.7	13.1	1.0
0K6P36V	0K6P36B	30.8	34.2	37.8	1.0	49.9	12.0	1.0
0K6P39V	0K6P39B	33.3	37.1	41.0	1.0	53.9	11.1	1.0
0K6P43V	0K6P43B	36.8	40.9	45.2	1.0	59.3	10.1	1.0
0K6P47V	0K6P47B	40.2	44.7	49.4	1.0	64.8	9.3	1.0
0K6P51V	0K6P51B	43.6	48.5	53.6	1.0	70.1	8.6	1.0
0K6P56V	0K6P56B	47.8	53.2	58.8	1.0	77.0	7.8	1.0
0K6P62V	0K6P62B	53.0	58.9	65.1	1.0	85.0	7.1	1.0
0K6P68V	0K6P68B	58.1	64.6	71.4	1.0	92.0	6.5	1.0
0K6P75V	0K6P75B	64.1	71.3	78.8	1.0	103	5.8	1.0
0K6P82V	0K6P82B	70.1	77.9	86.1	1.0	113	5.3	1.0
0K6P91V	0K6P91B	77.8	86.5	95.5	1.0	125	4.8	1.0

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UNI-POLAR	BI-POLAR	(V)	MIN	MAX	(mA)	(V)	(A)	(μA)
0K6P100V	0K6P100B	85.5	95.0	105	1.0	137	4.4	1.0
0K6P110V	0K6P110B	94.0	105	116	1.0	152	3.9	1.0
0K6P120V	0K6P120B	102	114	126	1.0	165	3.6	1.0
0K6P130V	0K6P130B	111	124	137	1.0	179	3.4	1.0
0K6P150V	0K6P150B	128	143	158	1.0	207	2.9	1.0
0K6P160V	0K6P160B	136	152	168	1.0	219	2.7	1.0
0K6P170V	0K6P170B	145	162	179	1.0	234	2.6	1.0
0K6P180V	0K6P180B	154	171	189	1.0	246	2.4	1.0
0K6P200V	0K6P200B	171	190	210	1.0	274	2.2	1.0
0K6P220V	0K6P220B	185	209	231	1.0	328	1.8	1.0
0K6P250V	0K6P250B	214	237	263	1.0	344	1.7	1.0
0K6P300V	0K6P300B	256	285	315	1.0	414	1.4	1.0
0K6P350V	0K6P350B	300	333	368	1.0	482	1.2	1.0
0K6P400V	0K6P400B	342	380	420	1.0	548	1.1	1.0
0K6P440V	0K6P440B	376	418	462	1.0	602	1.00	1.0
0K6P480V	0K6P480B	408	456	504	1.0	658	0.91	1.0
0K6P510V	0K6P510B	434	485	535	1.0	698	0.86	1.0
0K6P540V	0K6P540B	459	513	567	1.0	740	0.81	1.0

Note: The unidirectional Mark is "****V",For example the 0K6P6V8V
and the bidirectional Mark is "****B";For example the 0K6P6V8B

(1) Pulse test: $t_p \leq 50$ ms
(2) Surge current waveform per fig. 3 and derate per fig. 2
(3) For bi-directional types with V_{WM} of 10 V and less the I_D limit is doubled
(4) All terms and symbols are consistent with ANSI/EEE CA62.35

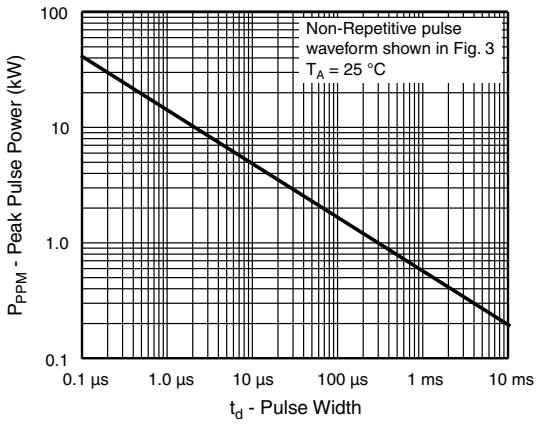


Fig. 1 - Peak Pulse Power Rating Curve

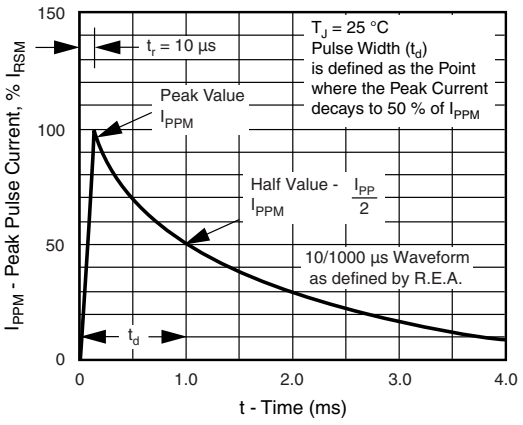


Fig. 3 - Pulse Waveform

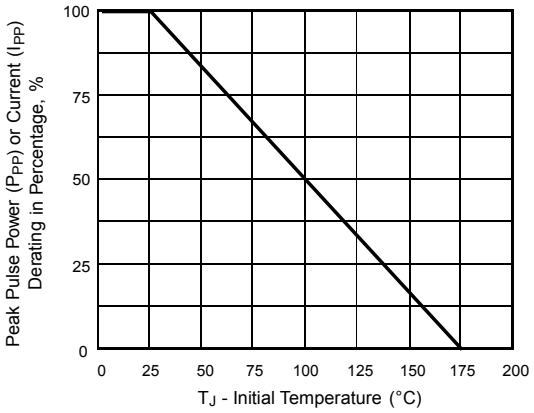


Fig. 2 - Pulse Power or Current vs. Initial Junction Temperature

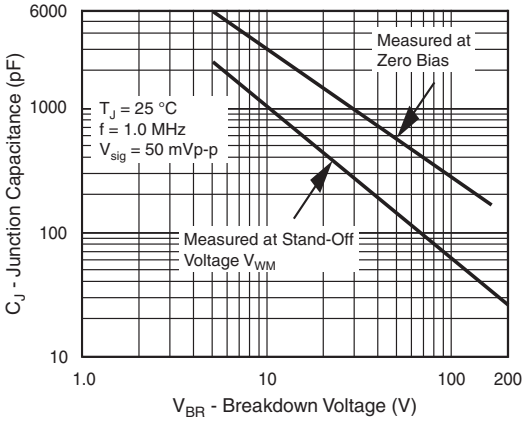


Fig. 4 - Typical Junction Capacitance

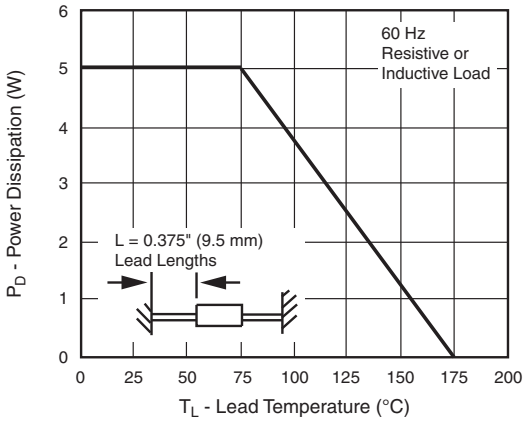


Fig. 5 - Power Derating Curve

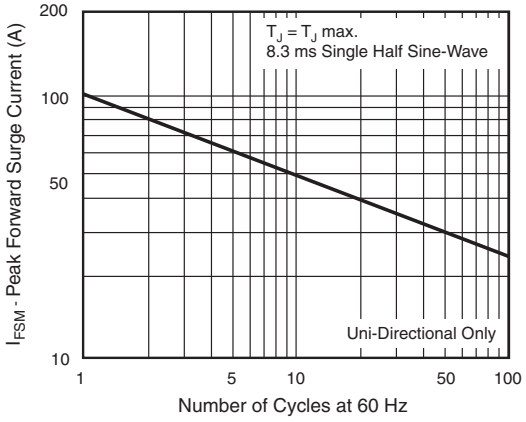
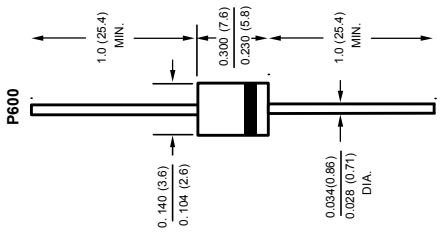


Fig. 6 - Maximum Non-Repetitive Forward Surge Current

PACKAGE OUTLINE DIMENSIONS in inches (millimeters)



APPLICATION NOTES

The 0K6P series of high power transient voltage suppressors were designed to be used on the output of switching power supplies. These devices may be used to replace crowbar circuits. Both the 5 % and 10 % voltage tolerances are referenced to the power supply output voltage level.

They are able to withstand high levels of peak current while allowing a circuit breaker to trip or a fuse blow before shorting. This will enable the user to reset the breaker or replace the fuse and continue operation. For this type operation, it is recommended that a sufficient mounting surface be used for dissipating the heat generated by the Transient Voltage Suppressor during the transient or over-voltage condition.

ORDERING INFORMATION (Example)				
PREFERRED P/N	**UNIT WEIGHT (g)**	**PREFERRED PACKAGE CODE**	**BASE QUANTITY**	**DELIVERY MODE**
0K6P	0.432	54	4000	13" diameter paper tape and reel