FEATURES

Glass passivated chip junction in P600 Package
Low leakage
Uni and Bidirectional unit
Excellent clamping capability
5000W Peak power capability at 10 × 1000μs waveform Repetition rate (duty cycle):0.01%
Fast response time: typically less than 1.0ps from 0 Volts to V_{BR} min
Typical I_R less than 5μA above 12V.
High Temperature soldering: 260°C/40 seconds at terminals
Typical maximum temperature coefficient ΔV_{BR} = 0.1% × V_{BR}@25°C× ΔT
Plastic package has Underwriters Laboratory Flammability 94V-0
Matte tin lead–free Plated
Halogen free and RoHS compliant
Typical failure mode is short from over-specified voltage or current
Whisker test is conducted based on JEDEC JESD201A per its table 4a and 4c
IEC-61000-4-2 ESD 15kV(Air), 8kV (Contact)
ESD protection of data lines in accordance with IEC 61000-4-2 (IEC801-2)
EFT protection of data lines in accordance with IEC 61000-4-4 (IEC801-4)

VOLTAGE RANGE
5.0 to 400 Volts
5000 Watts Peak Power

5KPxx(C)A
GK

5KP **xx** (C)A
VR Voltage
Bidirectional use C
LOGO GK

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation with a 10/1000μs waveform (Fig.1)(Note 1), (Note 2)	P_{PPM}	5000	Watts
Peak Pulse Current with a 10/1000μs waveform.(Note1,Fig.3)	I_{PP}	See Next Table	Amps
Power Dissipation on Infinite Heat Sink at T_L=75°C	$P_{M(AV)}$	8.0	Watt
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 3)	I_{FSM}	500	Amps
Operating junction and Storage Temperature Range.	T_J , T_{STG}	-55 to +150	°C

Notes:

1. Non-repetitive current pulse, per Fig. 3 and derated above T_A = 25°C per Fig. 2.
2. Mounted on 5.0mm x 5.0mm (0.03mm thick) Copper Pads to each terminal.
3. 8.3ms single half sine-wave, or equivalent square wave, Duty cycle = 4 pulses per minutes maximum.
4. V_F < 3.5V for V_{BR} < 200V and V_F< 6.5V for V_{BR} > 201V.

Electrical Characteristics

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage @IT		Test Current	Maximum Clamping Voltage @IPP (V)	Maximum Peak Pulse Current	Maximum Reverse Leakage @VRWM	Package
Uni	Bi	VRWM (V)	VBR MIN(V)	VBR MAX(V)	IT (mA)	VC(V)	IPP (A)	IR(μA)	
5KP5.0A	5KP5.0CA	5	6.4	7	50	9.2	543.48	800	R6/P600
5KP6.0A	5KP6.0CA	6	6.67	7.37	50	10.3	485.44	800	R6/P600
5KP6.5A	5KP6.5CA	6.5	7.22	7.98	50	11.2	446.43	500	R6/P600
5KP7.0A	5KP7.0CA	7	7.78	8.6	50	12	416.67	200	R6/P600
5KP7.5A	5KP7.5CA	7.5	8.33	9.21	5	12.9	387.6	100	R6/P600
5KP8.0A	5KP8.0CA	8	8.89	9.83	5	13.6	367.65	50	R6/P600
5KP8.5A	5KP8.5CA	8.5	9.44	10.4	5	14.4	347.22	25	R6/P600
5KP9.0A	5KP9.0CA	9	10	11.1	5	15.4	324.68	10	R6/P600
5KP10A	5KP10CA	10	11.1	12.3	5	17	294.12	5	R6/P600
5KP11A	5KP11CA	11	12.2	13.5	5	18.2	274.73	5	R6/P600
5KP12A	5KP12CA	12	13.3	14.7	5	19.9	251.26	5	R6/P600
5KP13A	5KP13CA	13	14.4	15.9	5	21.5	232.56	5	R6/P600
5KP14A	5KP14CA	14	15.6	17.2	5	23.2	215.52	5	R6/P600
5KP15A	5KP15CA	15	16.7	18.5	5	24.4	204.92	5	R6/P600
5KP16A	5KP16CA	16	17.8	19.7	5	26	192.31	5	R6/P600
5KP17A	5KP17CA	17	18.9	20.9	5	27.6	181.16	5	R6/P600
5KP18A	5KP18CA	18	20	22.1	5	29.2	171.23	5	R6/P600
5KP19A	5KP19CA	19	21.1	23.3	5	30.8	162.44	5	R6/P600
5KP20A	5KP20CA	20	22.2	24.5	5	32.4	154.32	5	R6/P600
5KP22A	5KP22CA	22	24.4	26.9	5	35.5	140.85	5	R6/P600
5KP24A	5KP24CA	24	26.7	29.5	5	38.9	128.53	5	R6/P600
5KP26A	5KP26CA	26	28.9	31.9	5	42.1	118.76	5	R6/P600
5KP28A	5KP28CA	28	31.1	34.4	5	45.4	110.13	5	R6/P600
5KP30A	5KP30CA	30	33.3	36.8	5	48.4	103.31	5	R6/P600
5KP33A	5KP33CA	33	36.7	40.6	5	53.3	93.81	5	R6/P600
5KP36A	5KP36CA	36	40	44.2	5	58.1	86.06	5	R6/P600
5KP40A	5KP40CA	40	44.4	49.1	5	64.5	77.52	5	R6/P600
5KP43A	5KP43CA	43	47.8	52.8	5	69.4	72.05	5	R6/P600
5KP45A	5KP45CA	45	50	55.3	5	72.7	68.78	5	R6/P600

Electrical Characteristics

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage @IT		Test Current	Maximum Clamping Voltage @IPP (V)	Maximum Peak Pulse Current	Maximum Reverse Leakage @VRWM	Package
Uni	Bi	VRWM (V)	VBR MIN(V)	VBR MAX(V)	IT (mA)	VC(V)	IPP (A)	IR(μA)	
5KP48A	5KP48CA	48	53.3	58.9	5	77.4	64.6	5	R6/P600
5KP51A	5KP51CA	51	56.7	62.7	5	82.4	60.68	5	R6/P600
5KP54A	5KP54CA	54	60	66.3	5	87.1	57.41	5	R6/P600
5KP58A	5KP58CA	58	64.4	71.2	5	93.6	53.42	5	R6/P600
5KP60A	5KP60CA	60	66.7	73.7	5	96.8	51.65	5	R6/P600
5KP64A	5KP64CA	64	71.1	78.6	5	103	48.54	5	R6/P600
5KP70A	5KP70CA	70	77.8	86	5	113	44.25	5	R6/P600
5KP75A	5KP75CA	75	83.3	92.1	5	121	41.32	5	R6/P600
5KP78A	5KP78CA	78	86.7	95.8	5	126	39.68	5	R6/P600
5KP80A	5KP80CA	80	88.8	97.6	5	129.6	38.58	5	R6/P600
5KP85A	5KP85CA	85	94.4	104	5	137	36.5	5	R6/P600
5KP90A	5KP90CA	90	100	111	5	146	34.25	5	R6/P600
5KP100A	5KP100CA	100	111	123	5	162	30.86	5	R6/P600
5KP110A	5KP110CA	110	122	135	5	177	28.25	5	R6/P600
5KP120A	5KP120CA	120	133	147	5	193	25.91	5	R6/P600
5KP130A	5KP130CA	130	144	159	5	209	23.92	5	R6/P600
5KP140A	5KP140CA	140	155	171	5	226.8	22.05	5	R6/P600
5KP150A	5KP150CA	150	167	185	5	243	20.58	5	R6/P600
5KP160A	5KP160CA	160	178	197	5	259	19.31	5	R6/P600
5KP170A	5KP170CA	170	189	209	5	275	18.18	5	R6/P600
5KP180A	5KP180CA	180	201	220	5	291.6	17.15	5	R6/P600
5KP190A	5KP190CA	190	211	232	5	307.8	16.24	5	R6/P600
5KP200A	5KP200CA	200	224	247	5	324	15.43	5	R6/P600
5KP210A	5KP210CA	210	233	258	5	349.5	14.31	5	R6/P600
5KP220A	5KP220CA	220	246	272	5	356	14.04	5	R6/P600
5KP250A	5KP250CA	250	279	309	5	405	12.35	5	R6/P600
5KP300A	5KP300CA	300	335	371	5	486	10.29	5	R6/P600
5KP350A	5KP350CA	350	391	432	5	567	8.82	5	R6/P600
5KP400A	5KP400CA	400	447	494	5	648	7.72	5	R6/P600
5KP440A	5KP440CA	440	492	543	5	713	7.01	5	R6/P600

RATING AND CHARACTERISTIC CURVES

FIG.1-PEAK PULSE POWER DERATING CURVE

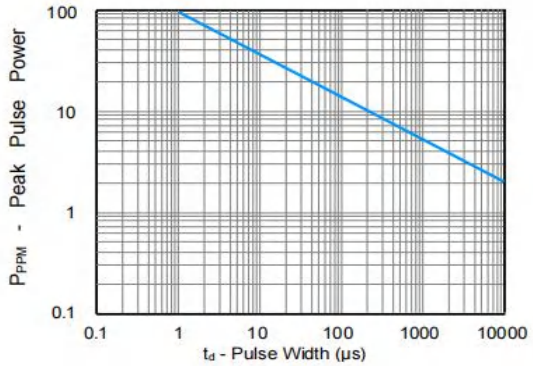


FIG.2-PULSE DERATING CURVE

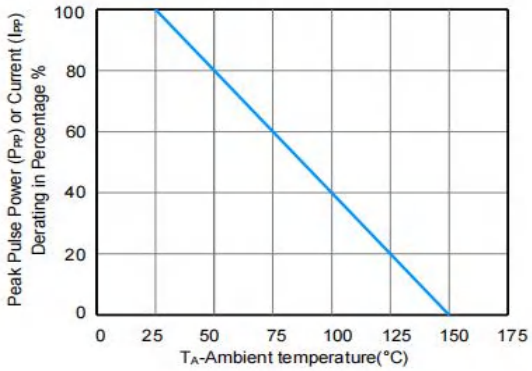


FIG.3-PULSE WAVE FORM

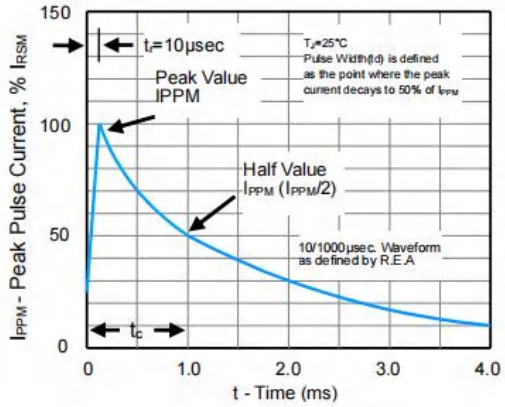


FIG.4-TYPICAL JUNCTION CAPACITANCE

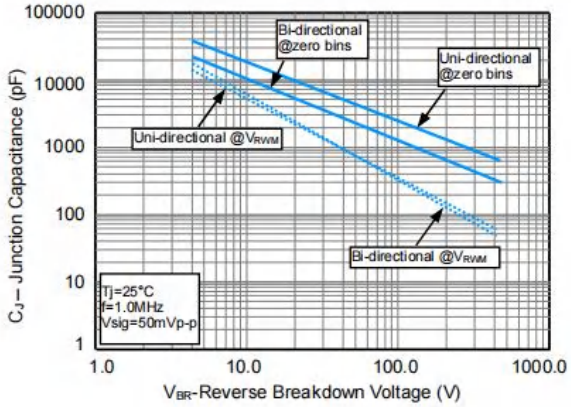


FIG.5-STEADY STATE POWER DERATING CURVE

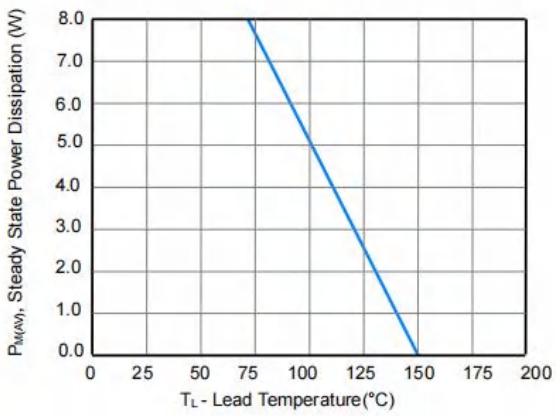
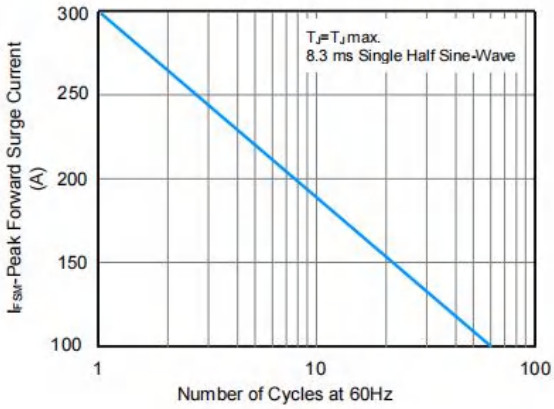
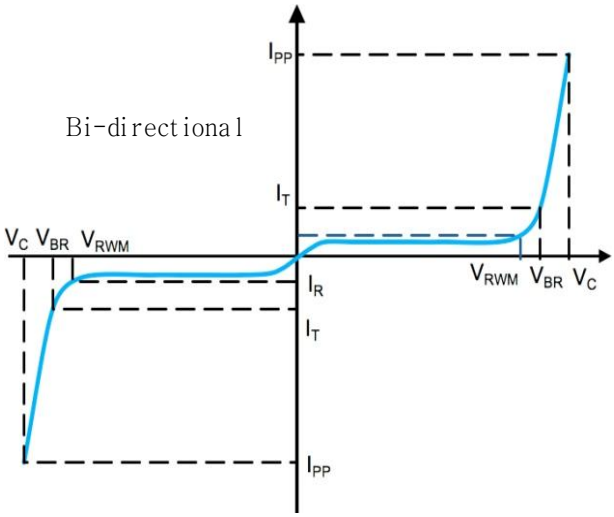
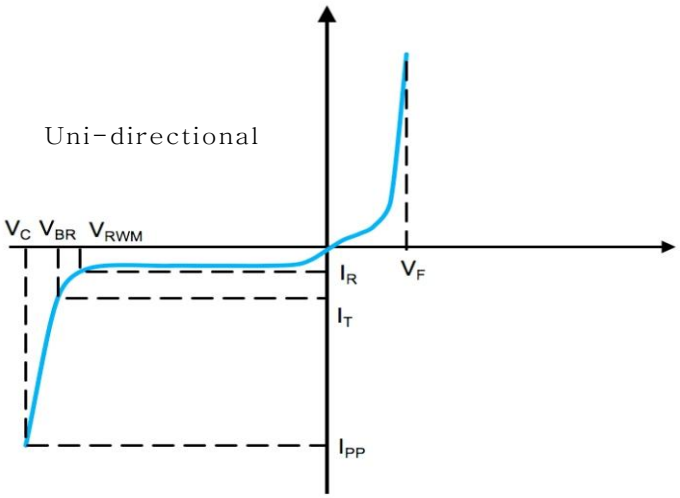


FIG.6-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT, UNIDIRECTIONAL



I-V Curve Characteristics



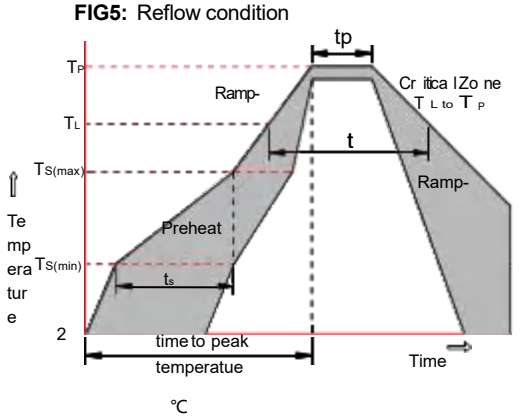


P_{PPM}	Peak Pulse Power Dissipation - Max power dissipation
V_{RWM}	Reverse Stand-off Voltage - Maximum voltage that can be applied to TVS without operation
V_{BR}	Breakdown Voltage – Maximum voltage that flows though the TVS at a specified current (I_T)
V_C	Clamping Voltage – Peak voltage measured across the TVS at a specified I_{PPM} (peak impulse current)
I_R	Reverse Leakage Current – Current measured at V_R
V_F	Forward Voltage Drop for Uni-directional

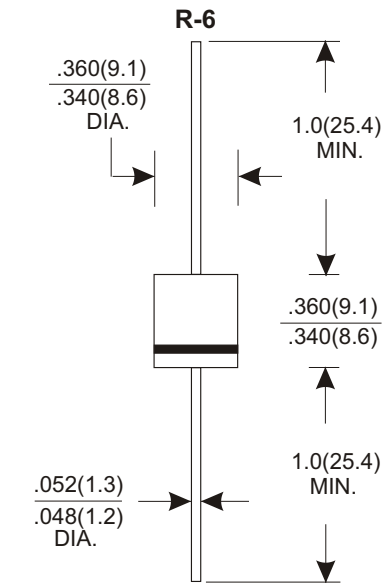
Soldering parameters

Reflow Condition		Pb-Free assembly (see as bellow)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150℃
	-Temperature Max($T_{s(max)}$)	+200℃
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3℃/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3℃/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217℃
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)℃
Time within 5℃ of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6℃/sec. Max
Time 25℃ to Peak Temp (T_P)		8 min. Max
Do not exceed		+260℃

FIG5: Reflow condition



Package Dimensions & Suggested Pad Layout



Dimensions in inches and (millimeters)