

CentralTM Semiconductor Corp.

145 Adams Avenue, Hauppauge, NY 11788 USA
Tel: (631) 435-1110 • Fax: (631) 435-1824

Manufacturers of World Class Discrete Semiconductors

P6KE6.8A THRU P6KE440A
P6KE6.8CA THRU P6KE440CA

GLASS PASSIVATED JUNCTION
TRANSIENT VOLTAGE SUPPRESSOR
600 WATTS, 6.8 THRU 440 VOLTS

JEDEC DO-15 CASE

DESCRIPTION

The CENTRAL SEMICONDUCTOR P6KE Series types are Glass Passivated Junction Transient Voltage Suppressors designed to protect voltage sensitive components from high voltage transients. **THIS DEVICE IS MANUFACTURED WITH A GLASS PASSIVATED CHIP FOR OPTIMUM RELIABILITY.** Note: For bi-directional devices use "CA" Suffix, (Example: P6KE7.5CA).

MAXIMUM RATINGS ($T_A=25^\circ\text{C}$ unless otherwise noted)

	SYMBOL	UNITS
Peak Power Dissipation	P_{DM}	600 W
Steady State Power Dissipation ($T_L=75^\circ\text{C}$)	P_D	5.0 W
Peak Forward Surge Current (JEDEC Method)	I_{FSM}	100 A
Operating and Storage Junction Temperature	T_J, T_{stg}	-65 to $+175$ $^\circ\text{C}$

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$ unless otherwise noted)

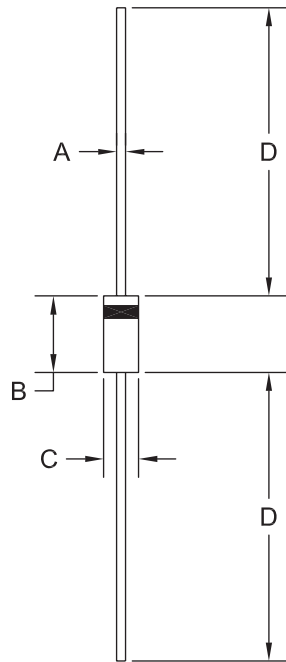
TYPE NO.	BREAKDOWN VOLTAGE				REVERSE STAND-OFF VOLTAGE V_{RWM} VOLTS	MAXIMUM REVERSE LEAKAGE @ V_{RWM} I_R μA	MAXIMUM PEAK PULSE CURRENT I_{PPM} A	MAXIMUM CLAMPING VOLTAGE @ I_{PPM} V_C VOLTS	MAXIMUM TEMPERATURE COEFFICIENT OF V_{BR} %/°C
	V_{BR}			@ I_T mA					
	VOLTS								
	MIN	NOM	MAX						
P6KE6.8A	6.45	6.8	7.14	10	5.80	1000	57	10.5	0.057
P6KE7.5A	7.13	7.5	7.88	10	6.40	500	53	11.3	0.061
P6KE8.2A	7.79	8.2	8.61	10	7.02	200	50	12.1	0.065
P6KE9.1A	8.65	9.1	9.55	1.0	7.78	50	45	13.4	0.068
P6KE10A	9.50	10	10.5	1.0	8.55	10	41	14.5	0.073
P6KE11A	10.5	11	11.6	1.0	9.40	5.0	38	15.6	0.075
P6KE12A	11.4	12	12.6	1.0	10.2	5.0	36	16.7	0.078
P6KE13A	12.4	13	13.7	1.0	11.1	5.0	33	18.2	0.081
P6KE15A	14.3	15	15.8	1.0	12.8	5.0	28	21.2	0.084
P6KE16A	15.2	16	16.8	1.0	13.6	5.0	27	22.5	0.086

ELECTRICAL CHARACTERISTICS Continued

TYPE NO.	BREAKDOWN VOLTAGE				REVERSE STAND-OFF VOLTAGE	MAXIMUM REVERSE LEAKAGE @ V_{RWM}	MAXIMUM PEAK PULSE CURRENT	MAXIMUM CLAMPING VOLTAGE @ I_{PPM}	MAXIMUM TEMPERATURE COEFFICIENT OF V_{BR}
	V_{BR}			@ I_T					
	VOLTS				V_{RWM}	I_R	I_{PPM}	V_C	
	MIN	NOM	MAX		mA	VOLTS	μA	A	VOLTS
P6KE18A	17.1	18	18.9	1.0	15.3	5.0	24	25.2	0.088
P6KE20A	19.0	20	21.0	1.0	17.1	5.0	22	27.7	0.090
P6KE22A	20.9	22	23.1	1.0	18.8	5.0	20	30.6	0.092
P6KE24A	22.8	24	25.2	1.0	20.5	5.0	18	33.2	0.094
P6KE27A	25.7	27	28.4	1.0	23.1	5.0	16	37.5	0.096
P6KE30A	28.5	30	31.5	1.0	25.6	5.0	14.4	41.4	0.097
P6KE33A	31.4	33	34.7	1.0	28.2	5.0	13.2	45.7	0.098
P6KE36A	34.2	36	37.8	1.0	30.8	5.0	12.0	49.9	0.099
P6KE39A	37.1	39	41.0	1.0	33.3	5.0	11.2	53.9	0.100
P6KE43A	40.9	43	45.2	1.0	36.8	5.0	10.1	59.3	0.101
P6KE47A	44.7	47	49.4	1.0	40.2	5.0	9.3	64.8	0.101
P6KE51A	48.5	51	53.6	1.0	43.6	5.0	8.6	70.1	0.102
P6KE56A	53.2	56	58.8	1.0	47.8	5.0	7.8	77.0	0.103
P6KE62A	58.9	62	65.1	1.0	53.0	5.0	7.1	85.0	0.104
P6KE68A	64.6	68	71.4	1.0	58.1	5.0	6.5	92.0	0.104
P6KE75A	71.3	75	78.8	1.0	64.1	5.0	5.8	103	0.105
P6KE82A	77.9	82	86.1	1.0	70.1	5.0	5.3	113	0.105
P6KE91A	86.5	91	95.5	1.0	77.8	5.0	4.8	125	0.106
P6KE100A	95.0	100	105	1.0	85.5	5.0	4.4	137	0.106
P6KE110A	105	110	116	1.0	94.0	5.0	4.0	152	0.107
P6KE120A	114	120	126	1.0	102	5.0	3.6	165	0.107
P6KE130A	124	130	137	1.0	111	5.0	3.3	179	0.107
P6KE150A	143	150	158	1.0	128	5.0	2.9	207	0.108
P6KE160A	152	160	168	1.0	136	5.0	2.7	219	0.108
P6KE170A	162	170	179	1.0	145	5.0	2.6	234	0.108
P6KE180A	171	180	189	1.0	154	5.0	2.4	246	0.108
P6KE200A	190	200	210	1.0	171	5.0	2.2	274	0.108
P6KE220A	209	220	231	1.0	185	5.0	2.0	328	0.108
P6KE250A	237	250	263	1.0	214	5.0	2.0	344	0.110
P6KE300A	285	300	315	1.0	256	5.0	2.0	414	0.110
P6KE350A	332	350	368	1.0	300	5.0	2.0	482	0.110
P6KE400A	380	400	420	1.0	342	5.0	2.0	548	0.110
P6KE440A	418	440	462	1.0	376	5.0	2.0	600	0.110

Package Details - DO-15

Mechanical Drawing



SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.028	0.034	0.71	0.86
B	0.230	0.300	5.84	7.62
C	0.104	0.140	2.64	3.56
D	1.000	-	25.40	-

DO-15 (REV: R1)

Lead Code:
Cathode band

R1

Packing options:

Bulk - Packing Code: D

D = White corrugated box with black conductive coating (surface resistivity of $<10^5$ ohms per square).

Bulk Packing Quantity: 1,000

Tape and Reel - Packing Code: A

A = Axial taped and reeled in accordance with EIA-296-E. If required, individual reels placed in poly antistatic coated bags (surface resistivity of $>10^9$ and $<10^{13}$ ohms per square).

Tape and Reel Packing Quantity: 4,000

Material Composition Specification

DO-15 Case

Pb (lead)-free plating**



Device average mass 401 mg

Fluctuation margin +/-10%

Component	Material	Material		Substance	CAS No.	Substance		
		(%wt)	(mg)			(%wt)	(mg)	(ppm)
active device	doped Si	0.42%	1.68	Si	7440-21-3	0.42%	1.68	4,190
die attach	high temperature solder	0.7%	2.81	Pb	7439-92-1	0.65%	2.6	6,484
				Sn	7440-31-5	0.03%	0.14	349
				Ag	7440-22-4	0.02%	0.07	175
leadframe	Cu alloy	73.57%	295	Cu	7440-50-8	73.49%	294.7	734,931
				Fe	7439-89-6	0.07%	0.3	748
encapsulation*	EMC	21.2%	85	silica	7631-86-9	16.31%	65.4	163,096
				epoxy resin	29690-82-2	2.12%	8.5	21,198
				phenol resin	9003-35-4	2.05%	8.24	20,549
				Sb ₂ O ₃	1309-64-4	0.36%	1.43	3,566
				Br	7726-95-6	0.36%	1.43	3,566
	EMC GREEN	21.2%	85	silica	7631-86-9	16.31%	65.4	163,096
				epoxy resin	29690-82-2	2.12%	8.5	21,198
				phenol resin	9003-35-4	2.05%	8.24	20,549
				carbon black	1333-86-4	0.06%	0.26	648
				metal hydroxide	1309-42-8	0.65%	2.6	6,484
plating**	tin lead process	4.1%	16.46	Sn	7440-31-5	3.28%	13.17	32,844
				Pb	7439-92-1	0.82%	3.29	8,205
	100% matte tin	4.1%	16.46	Sn	7440-31-5	4.1%	16.46	41,048
ink	N/A	0.01%	0.04	2-propenic acid	53192-18-0	0.01%	0.022	55
				Al	7429-90-5	0.001%	0.006	15
				silica	112945-52-5	0.0002%	0.001	2
				methanone	947-19-3	0.0002%	0.001	2
				isoamyl 4-benzoate	21245-01-2	0.002%	0.01	25

*EMC GREEN molding compound is Halogen Free.

**Specify Lead-Free when ordering 100% tin (Pb-free) plating.

Disclaimer

The information provided in this Material Composition data sheet is, to the best of our knowledge, correct. However, there is no guarantee to completeness or accuracy, as some information is derived from data sources outside the company.

R1 (30-September 2010)

Central Semi Part Availability P6KE220CA

Leaded Zener Diode Transient Suppressor Standard Tolerance

Found 2 part(s).

Central Semi Part # :	Packaging Base:	Availability :
P6KE220CA BK	Box@1,000	Please Call
P6KE220CA TR	Reel@4,000	Please Call



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