



600 W Unidirectional and Bidirectional Transient Voltage Suppressor Diodes

<p>DO-15</p> 	<p>Peak Pulse Power Rating At 1 ms. Exp. 600 W</p>	<p>Reverse stand-off Voltage 5.8 ÷ 459 V</p>
		
	<p>FEATURES</p> <ul style="list-style-type: none"> • Glass passivated chip junction • Hyperrectifier structure for high reliability • 600 W peak pulse power capability with a 10/1000 μs waveform, repetitive rate (duty cycle): 0.01 % • Solder dip 260°C, 10s • AEC-Q101 qualified • Component in accordance to RoHS 2011/65/EU and WEEE 2002/96/EC • Excellent clamping capability • Very fast response time • Low incremental surge resistance • Available in uni-directional and bi-directional 	
<p>MECHANICAL DATA</p> <ul style="list-style-type: none"> • Case: DO-15 Epoxy meets UL 94V-0 flammability rating. • Polarity: For uni-directional types the color band denotes cathode end, no marking on bi-directional types • Terminals: Matte tin plated leads, solderable per MIL-STD-750 Method 2026, J-STD-002 and JESD22-B102. Consumer grade, meets JESD 201 class 1A whisker test. HE3 suffix for high reliability grade, meets JESD 201 class 2 whisker test. 		
<p>TYPICAL APPLICATIONS</p> <p>Used in sensitive electronics protection against voltage transients induced by inductive load switching and lighting on ICs, MOSFET, signal lines of sensor units for consumer, computer, industrial, automotive and telecommunication.</p>		

Maximum Ratings and Electrical Characteristics at 25°C

P_{pp}	Peak pulse power with 10/1000 μ s exponential pulse	600 W
I_{FSM}	Non repetitive surge peak forward current (t = 8.3 ms) (Jedec Method) (Note 1)	100 A
T_j	Operating temperature range	- 65 to + 175 °C
T_{stg}	Storage temperature range	- 65 to + 175 °C
$P_{M(AV)}$	Steady State Power dissipation (l = 10mm)	5 W

Electrical Characteristics at $T_{amb} = 25\text{ °C}$

V_F	Max. forward voltage drop at $I_F = 50\text{ A}$ (Note 1)	$V_{BR} \leq 220\text{ V}$	3.5 V
		$V_{BR} > 220\text{ V}$	5.0 V
R_{thj-l}	Max. thermal resistance (l = 10 mm.)		30 °C/W

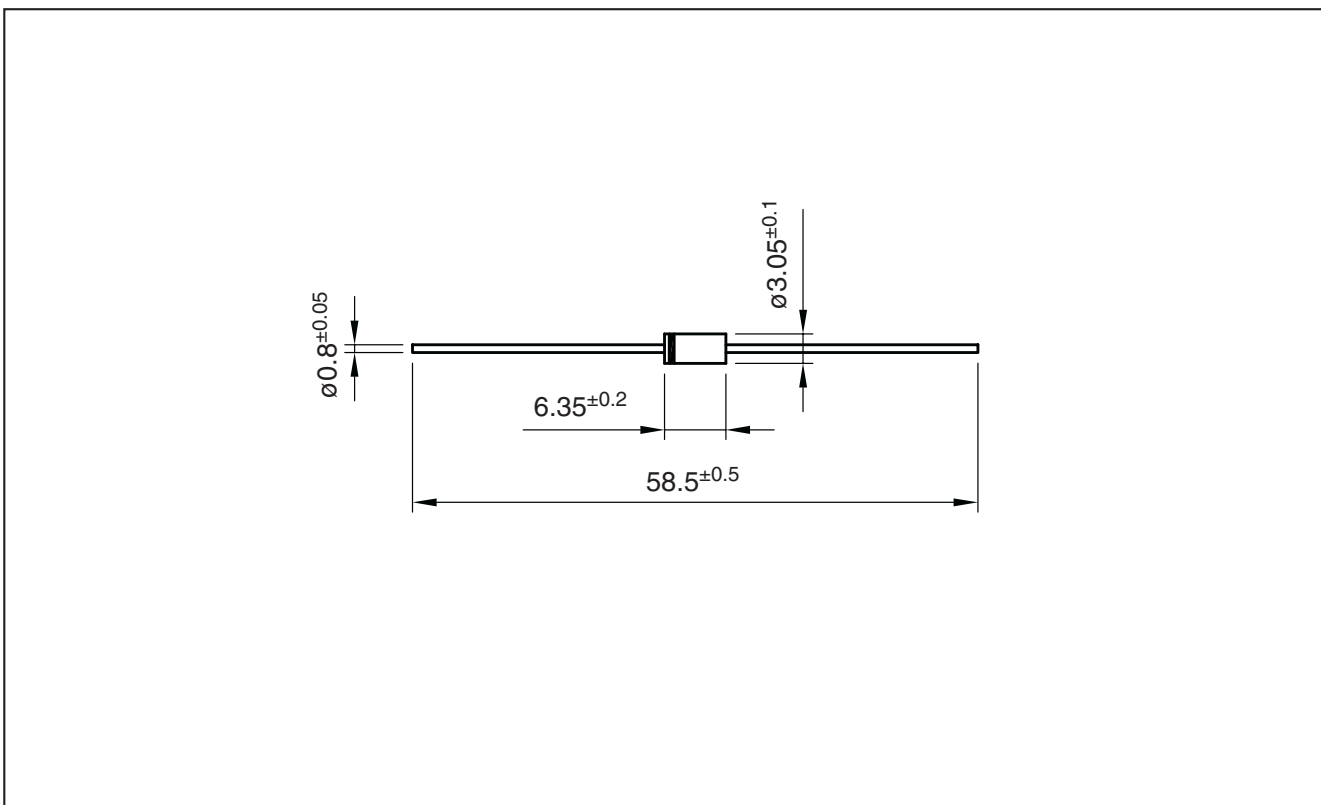
Note 1: Valid only for Unidirectional.

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Ordering information

PREFERRED P/N	PACKAGE CODE	DELIVERY MODE	BASE QUANTITY	UNIT WEIGHT (g)
P6KE47A AMP	AMP	AMMO BOX	4,000	0.378
P6KE47A TR	TR	14" diameter tape and reel	4,000	0.378
P6KE47A HE3 AMP	AMP	AMMO BOX	4,000	0.378
P6KE47A HE3 TR	TR	14" diameter tape and reel	4,000	0.378

Package Outline Dimensions: (mm) DO-15



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Type	Maximum Reverse Leakage Current		(1) Breakdown Voltage			I_R (mA)	Max. Clamping Voltage	
	I_{RM} at V_{RM}	V_{RM}	V_{BR} at I_R	V_{BR} at I_R	V_{BR} at I_R		V_{CL} at I_{PP}	I_{PP}
Unidirectional	(μ A)	(V)	Min.	Nom.	Max.	(mA)	(V)	(A)
P6KE6V8	1000	5.50	6.12	6.8	7.48	10	10.8	56
P6KE6V8A	1000	5.80	6.45	6.8	7.14	10	10.5	57
P6KE7V5	500	6.05	6.75	7.5	8.25	10	11.7	51
P6KE7V5A	500	6.40	7.13	7.5	7.88	10	11.3	53
P6KE8V2	200	6.63	7.38	8.2	9.02	10	12.5	48
P6KE8V2A	200	7.02	7.79	8.2	8.61	10	12.1	50
P6KE9V1	50	7.37	8.19	9.1	10.0	1	13.8	44
P6KE9V1A	50	7.78	8.65	9.1	9.55	1	13.4	45
P6KE10	10	8.10	9.00	10	11.0	1	15.0	40
P6KE10A	10	8.55	9.50	10	10.5	1	14.5	41
P6KE11	5	8.92	9.90	11	12.1	1	16.2	37
P6KE11A	5	9.40	10.5	11	11.6	1	15.6	38
P6KE12	5	9.72	10.8	12	13.2	1	17.3	35
P6KE12A	5	10.2	11.4	12	12.6	1	16.7	36
P6KE13	5	10.5	11.7	13	14.3	1	19.0	32
P6KE13A	5	11.1	12.4	13	13.7	1	18.2	33
P6KE15	1	12.1	13.5	15	16.5	1	22.0	27
P6KE15A	1	12.8	14.3	15	15.8	1	21.2	28
P6KE16	1	12.9	14.4	16	17.6	1	23.5	26
P6KE16A	1	13.6	15.2	16	16.8	1	22.5	27
P6KE18	1	14.5	16.2	18	19.8	1	26.5	23
P6KE18A	1	15.3	17.1	18	18.9	1	25.5	24
P6KE20	1	16.2	18.0	20	22.0	1	29.1	21
P6KE20A	1	17.1	19.0	20	21.0	1	27.7	22
P6KE22	1	17.8	19.8	22	24.2	1	31.9	19
P6KE22A	1	18.8	20.9	22	23.1	1	30.6	20
P6KE24	1	19.4	21.6	24	26.4	1	34.7	17
P6KE24A	1	20.5	22.8	24	25.2	1	33.2	18
P6KE27	1	21.8	24.3	27	29.7	1	39.1	15
P6KE27A	1	23.1	25.7	27	28.4	1	37.5	16
P6KE30	1	24.3	27.0	30	33.0	1	43.5	14
P6KE30A	1	25.6	28.5	30	31.5	1	41.4	14.4
P6KE33	1	26.8	29.7	33	36.3	1	47.7	12.6
P6KE33A	1	28.2	31.4	33	34.7	1	45.7	13.2
P6KE36	1	29.1	32.4	36	39.6	1	52.0	11.6
P6KE36A	1	30.8	34.2	36	37.8	1	49.9	12
P6KE39	1	31.6	35.1	39	42.9	1	56.4	10.6
P6KE39A	1	33.3	37.1	39	41.0	1	53.9	11.2
P6KE43	1	34.8	38.7	43	47.3	1	61.9	9.6
P6KE43A	1	36.8	40.9	43	45.2	1	59.3	10.1
P6KE47	1	38.1	42.3	47	51.7	1	67.8	8.9
P6KE47A	1	40.2	44.7	47	49.4	1	64.8	9.3
P6KE51	1	41.3	45.9	51	56.1	1	73.5	8.2
P6KE51A	1	43.6	48.5	51	53.6	1	70.1	8.6

(1) Tested with pulses.
Pulse test: $t_p \leq 50$ ms; $\delta < 2\%$

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Type	Maximum Reverse Leakage Current		(1) Breakdown Voltage			I_R (mA)	Max. Clamping Voltage	
	I_{RM} (μ A)	at V_{RM} (V)	Min.	Nom.	Max.		V_{CL} (V)	at I_{PP} (A)
P6KE56	1	45.4	50.4	56	61.6	1	80.5	7.4
P6KE56A	1	47.8	53.2	56	58.8	1	77.0	7.8
P6KE62	1	50.2	55.8	62	68.2	1	89.0	6.8
P6KE62A	1	53.0	58.9	62	65.1	1	85.0	7.1
P6KE68	1	55.1	61.2	68	74.8	1	98.0	6.1
P6KE68A	1	58.1	64.6	68	71.4	1	92.0	6.5
P6KE75	1	60.7	67.5	75	82.5	1	108	5.5
P6KE75A	1	64.1	71.3	75	78.8	1	103	5.8
P6KE82	1	66.4	73.8	82	90.2	1	118	5.1
P6KE82A	1	70.1	77.9	82	86.1	1	113	5.3
P6KE91	1	73.7	81.9	91	100	1	131	4.5
P6KE91A	1	77.8	86.5	91	95.5	1	125	4.8
P6KE100	1	81.0	90.0	100	110	1	144	4.2
P6KE100A	1	85.5	95.0	100	105	1	137	4.4
P6KE110	1	89.2	99.0	110	121	1	158	3.8
P6KE110A	1	94.0	105	110	116	1	152	4.0
P6KE120	1	97.2	108	120	132	1	173	3.5
P6KE120A	1	102	114	120	126	1	165	3.6
P6KE130	1	105	117	130	143	1	187	3.2
P6KE130A	1	111	124	130	137	1	179	3.3
P6KE150	1	121	135	150	165	1	215	2.8
P6KE150A	1	128	143	150	158	1	207	2.9
P6KE160	1	130	144	160	176	1	230	2.6
P6KE160A	1	136	152	160	168	1	219	2.7
P6KE170	1	138	153	170	187	1	244	2.5
P6KE170A	1	145	162	170	179	1	234	2.6
P6KE180	1	146	162	180	198	1	258	2.3
P6KE180A	1	154	171	180	189	1	246	2.4
P6KE200	1	162	180	200	220	1	287	2.1
P6KE200A	1	171	190	200	210	1	274	2.2
P6KE220	1	175	198	220	242	1	344	1.75
P6KE220A	1	185	209	220	231	1	328	1.83
P6KE250	1	202	225	250	275	1	360	1.67
P6KE250A	1	214	237	250	263	1	344	1.75
P6KE300	1	243	270	300	330	1	430	1.40
P6KE300A	1	256	285	300	315	1	414	1.45
P6KE320	1	259	288	320	352	1	457	1.32
P6KE320A	1	273	304	320	336	1	438	1.6
P6KE350	1	284	315	350	385	1	504	1.20
P6KE350A	1	300	332	350	368	1	482	1.25
P6KE400	1	324	360	400	440	1	574	1.05
P6KE400A	1	342	380	400	420	1	548	1.10
P6KE440	1	356	396	440	484	1	631	0.95
P6KE440A	1	376	418	440	462	1	602	1.0
P6KE480	1	389	432	480	528	1	686	0.88
P6KE480A	1	408	456	480	504	1	658	0.91
P6KE510	1	413	459	510	561	1	729	0.82
P6KE510A	1	434	485	510	535	1	698	0.86
P6KE540	1	437	486	540	594	1	772	0.78
P6KE540A	1	459	513	540	567	1	740	0.81

(1) Tested with pulses.
Pulse test: $t_p \leq 50$ ms; $\delta < 2\%$

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Type	Maximum Reverse Leakage Current		(1) Breakdown Voltage			I_R (mA)	Max. Clamping Voltage	
	I_{RM} (μ A)	at V_{RM} (V)	V_{BR} (V)	at			V_{CL} (V)	at I_{PP} (A)
Bidirectional	(μ A)	(V)	Min.	Nom.	Max.	(mA)	(V)	(A)
P6KE6V8C	1000	5.50	6.12	6.8	7.48	10	10.8	56
P6KE6V8CA	1000	5.80	6.45	6.8	7.14	10	10.5	57
P6KE7V5C	500	6.05	6.75	7.5	8.25	10	11.7	51
P6KE7V5CA	500	6.40	7.13	7.5	7.88	10	11.3	53
P6KE8V2C	200	6.63	7.38	8.2	9.02	10	12.5	48
P6KE8V2CA	200	7.02	7.79	8.2	8.61	10	12.1	50
P6KE9V1C 50	50	7.37	8.19	9.1	10.0	1	13.8	44
P6KE9V1CA	50	7.78	8.65	9.1	9.55	1	13.4	45
P6KE10C	10	8.10	9.00	10	11.0	1	15.0	40
P6KE10CA	10	8.55	9.50	10	10.5	1	14.5	41
P6KE11C	5	8.92	9.90	11	12.1	1	16.2	37
P6KE11CA	5	9.40	10.5	11	11.6	1	15.6	38
P6KE12C	5	9.72	10.8	12	13.2	1	17.3	35
P6KE12CA	5	10.2	11.4	12	12.6	1	16.7	36
P6KE13C	5	10.5	11.7	13	14.3	1	19.0	32
P6KE13CA	5	11.1	12.4	13	13.7	1	18.2	33
P6KE15C	1	12.1	13.5	15	16.5	1	22.0	27
P6KE15CA	1	12.8	14.3	15	15.8	1	21.2	28
P6KE16C	1	12.9	14.4	16	17.6	1	23.5	26
P6KE16CA	1	13.6	15.2	16	16.8	1	22.5	27
P6KE18C	1	14.5	16.2	18	19.8	1	26.5	23
P6KE18CA	1	15.3	17.1	18	18.9	1	25.5	24
P6KE20C	1	16.2	18.0	20	22.0	1	29.1	21
P6KE20CA	1	17.1	19.0	20	21.0	1	27.7	22
P6KE22C	1	17.8	19.8	22	24.2	1	31.9	19
P6KE22CA	1	18.8	20.9	22	23.1	1	30.6	20
P6KE24C	1	19.4	21.6	24	26.4	1	34.7	17
P6KE24CA	1	20.5	22.8	24	25.2	1	33.2	18
P6KE27C	1	21.8	24.3	27	29.7	1	39.1	15
P6KE27CA	1	23.1	25.7	27	28.4	1	37.5	16
P6KE30C	1	24.3	27.0	30	33.0	1	43.5	14
P6KE30CA	1	25.6	28.5	30	31.5	1	41.4	14.4
P6KE33C	1	26.8	29.7	33	36.3	1	47.7	12.6
P6KE33CA	1	28.2	31.4	33	34.7	1	45.7	13.2
P6KE36C	1	29.1	32.4	36	39.6	1	52.0	11.6
P6KE36CA	1	30.8	34.2	36	37.8	1	49.9	12
P6KE39C	1	31.6	35.1	39	42.9	1	56.4	10.6
P6KE39CA	1	33.3	37.1	39	41.0	1	53.9	11.2
P6KE43C	1	34.8	38.7	43	47.3	1	61.9	9.6
P6KE43CA	1	36.8	40.9	43	45.2	1	59.3	10.1
P6KE47C	1	38.1	42.3	47	51.7	1	67.8	8.9
P6KE47CA	1	40.2	44.7	47	49.4	1	64.8	9.3
P6KE51C	1	41.3	45.9	51	56.1	1	73.5	8.2
P6KE51CA	1	43.6	48.5	51	53.6	1	70.1	8.6

(1) Tested with pulses.
Pulse test: $t_p \leq 50$ ms; $\delta < 2\%$

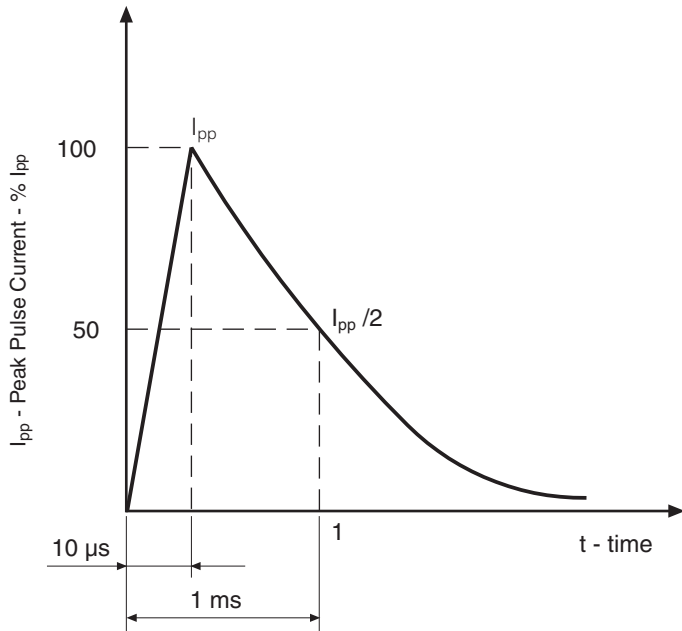
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Type	Maximum Reverse Leakage Current		(1) Breakdown Voltage			I_R (mA)	Max. Clamping Voltage	
	I_{RM} (μA)	at V_{RM} (V)	V_{BR} (V)	at	I_R		V_{CL} (V)	at I_{PP} (A)
Bidirectional	(μA)	(V)	Min.	Nom.	Max.	(mA)	(V)	(A)
P6KE56C	1	45.4	50.4	56	61.6	1	80.5	7.4
P6KE56CA	1	47.8	53.2	56	58.8	1	77.0	7.8
P6KE62C	1	50.2	55.8	62	68.2	1	89.0	6.8
P6KE62CA	1	53.0	58.9	62	65.1	1	85.0	7.1
P6KE68C	1	55.1	61.2	68	74.8	1	98.0	6.1
P6KE68CA	1	58.1	64.6	68	71.4	1	92.0	6.5
P6KE75C	1	60.7	67.5	75	82.5	1	108	5.5
P6KE75CA	1	64.1	71.3	75	78.8	1	103	5.8
P6KE82C	1	66.4	73.8	82	90.2	1	118	5.1
P6KE82CA	1	70.1	77.9	82	86.1	1	113	5.3
P6KE91C	1	73.7	81.9	91	100	1	131	4.5
P6KE91CA	1	77.8	86.5	91	95.5	1	125	4.8
P6KE100C	1	81.0	90.0	100	110	1	144	4.2
P6KE100CA	1	85.5	95.0	100	105	1	137	4.4
P6KE110C	1	89.2	99.0	110	121	1	158	3.8
P6KE110CA	1	94.0	105	110	116	1	152	4.0
P6KE120C	1	97.2	108	120	132	1	173	3.5
P6KE120CA	1	102	114	120	126	1	165	3.6
P6KE130C	1	105	117	130	143	1	187	3.2
P6KE130CA	1	111	124	130	137	1	179	3.3
P6KE150C	1	121	135	150	165	1	215	2.8
P6KE150CA	1	128	143	150	158	1	207	2.9
P6KE160C	1	130	144	160	176	1	230	2.6
P6KE160CA	1	136	152	160	168	1	219	2.7
P6KE170C	1	138	153	170	187	1	244	2.5
P6KE170CA	1	145	162	170	179	1	234	2.6
P6KE180C	1	146	162	180	198	1	258	2.3
P6KE180CA	1	154	171	180	189	1	246	2.4
P6KE200C	1	162	180	200	220	1	287	2.1
P6KE200CA	1	171	190	200	210	1	274	2.2
P6KE220C	1	175	198	220	242	1	344	1.75
P6KE220CA	1	185	209	220	231	1	328	1.83
P6KE250C	1	202	225	250	275	1	360	1.67
P6KE250CA	1	214	237	250	263	1	344	1.75
P6KE300C	1	243	270	300	330	1	430	1.40
P6KE300CA	1	256	285	300	315	1	414	1.45
P6KE320C	1	259	288	320	352	1	457	1.32
P6KE320CA	1	273	304	320	336	1	438	1.40
P6KE350C	1	284	315	350	385	1	504	1.20
P6KE350CA	1	300	332	350	368	1	482	1.25
P6KE400C	1	324	360	400	440	1	574	1.05
P6KE400CA	1	342	380	400	420	1	548	1.10
P6KE440C	1	356	396	440	484	1	631	0.95
P6KE440CA	1	376	418	440	462	1	602	1.0

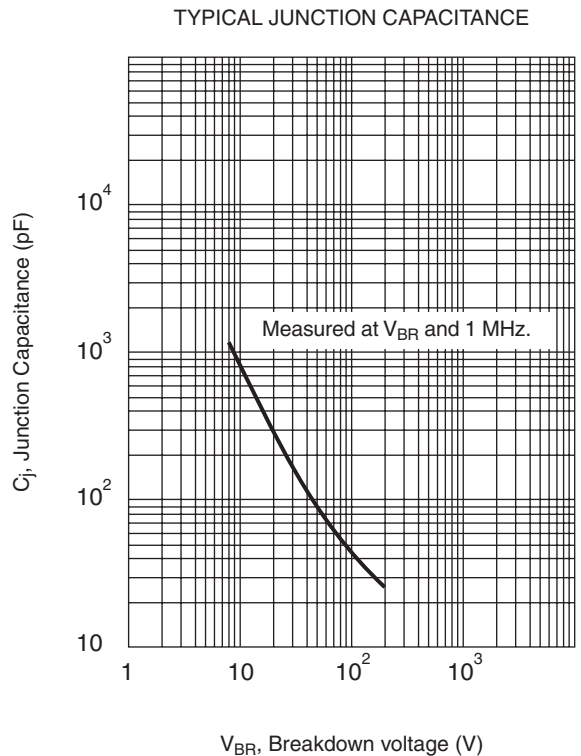
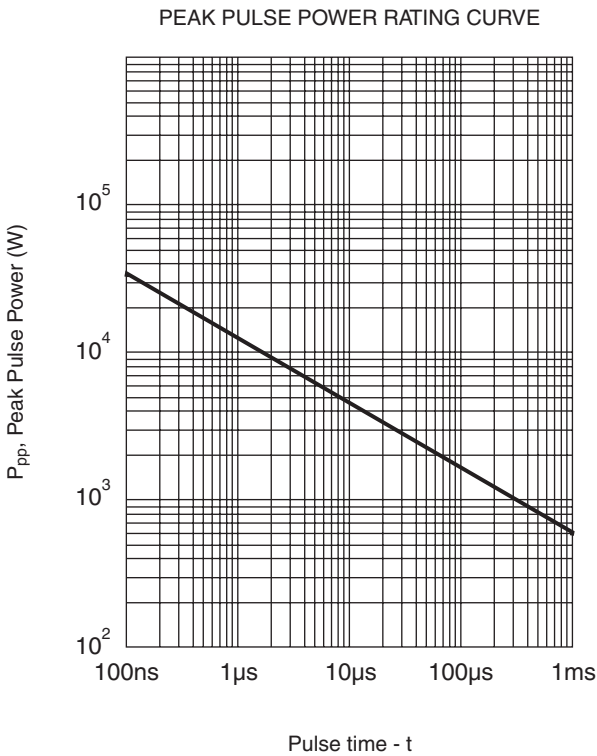
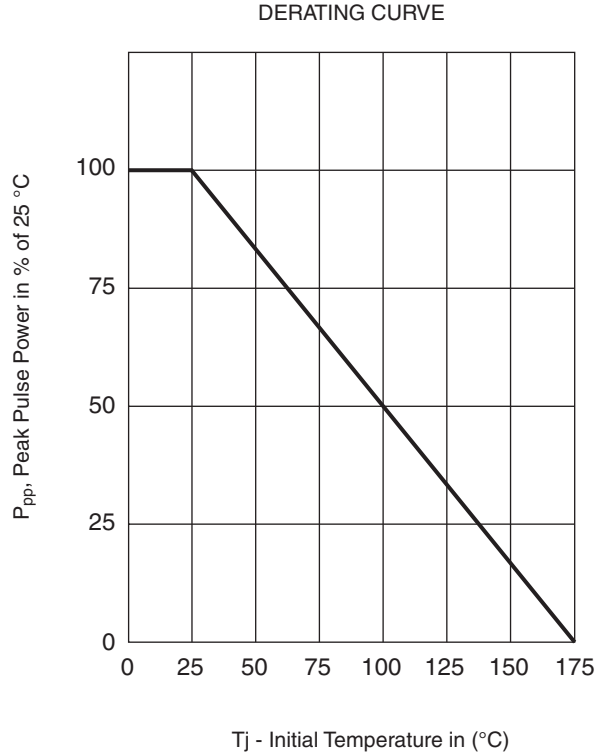
(1) Tested with pulses.
Pulse test: $t_p \leq 50$ ms; $\delta < 2\%$

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Ratings and Characteristics (Ta 25 °C unless otherwise noted)



Pulse wave form 10/1000



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Disclaimer

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