

COMPONENT SPECIFICATION

SERIES NAME Metallized Polypropylene IGBT Snubber Capacitors
SERIES CODE 121



GIVEN BY: DEKI ELECTRONICS LTD

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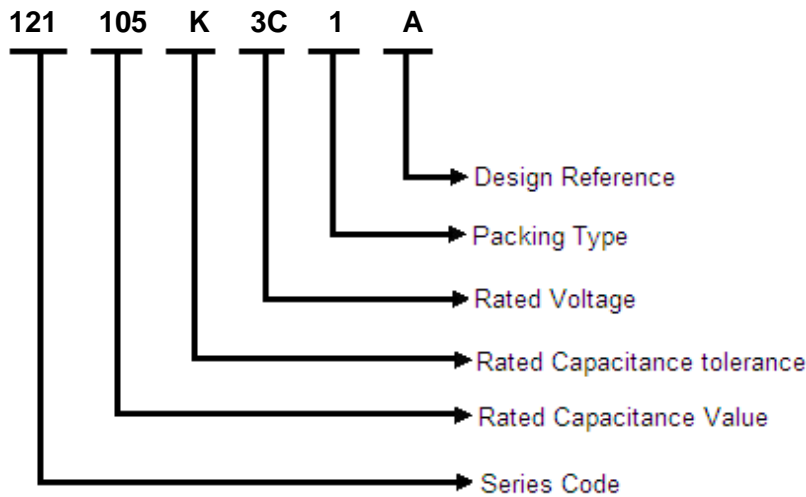
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Part Number Description



Rated Capacitance

Three-digit (224) indicate rated capacitance in Pico Farad (First two digits indicate value & third digit indicates number of zeroes to be suffixed to first two digits).

For example:

103 = 10 × 10 ³	= 10000 pF	= 10 nF	= 0.01 μF
104 = 10 × 10 ⁴	= 100000 pF	= 100 nF	= 0.1 μF
105 = 10 × 10 ⁵	= 1000000 pF	= 1000 nF	= 1 μF
106 = 10 × 10 ⁶	= 10000000 pF	= 10000 nF	= 10 μF

Capacitance Tolerance

In 3rd group of the part number-

F = ±1%, G = ±2%, H = ±2.5%, I = ±3.5%, J = ±5%, K = ±10%, L = ±15%, M = ±20%, N=±40%

Rated Voltage

In 4th group of the part number, one numeric digit and one letter (Ex.-2A) indicate DC voltage rating while two numeric digits (Ex.06) indicate AC voltage rating.

Rated Voltage Codification

For DC Rated Voltage													
A		B		C		D		E		F		G	
1A	10	1B	12.5	1C	16	1D	20	1E	25	1F	30	1G	40
2A	100	2B	125	2C	160	2D	200	2E	250	2F	300	2G	400
3A	1000	3B	1250	3C	1600	3D	2000	3E	2500	3F	3000	3G	4000
H		I		J		K		L		M		N	
1H	50	1I	45	1J	63	1K	70	1L	80	1M	85	1N	90
2H	500	2I	450	2J	630	2K	700	2L	800	2M	850	2N	900
3H	5000	3I	4500	3J	6300	3K	7000	3L	8000	3M	8500	3N	9000
O		P		Q		R		S		U		V	
1O	110	1P	120	1Q	57.5	1R	15	1S	17	1U	130	1V	60
2O	1100	2P	1200	2Q	575	2R	150	2S	170	2U	1300	2V	600
3O	11000	3P	12000	3Q	5750	3R	1500	3S	1700	3U	13000	3V	6000
For AC Rated Voltage													
01	02	03	04	05	06	07	08	09	10	11	12	13	14
190 VAC	250 VAC	275 VAC	305 VAC	310 VAC	440 VAC	500 VAC	600 VAC	700 VAC	63 VAC	230 VAC	330 VAC	400 VAC	450 VAC

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Packing Type

- 1: Bulk packing (original pitch)
- 2: Bulk packing (after forming & cutting)
- 3: Ammo packing (after forming & taping)
- 4: Bulk packing (after forming in original pitch without cut)
- 5: Bulk packing (after formed & without cut)
- 6: Ammo packing (Straight lead)
- 7: Bulk packing (Straight lead cut)
- 8: Reel packing (Straight lead)

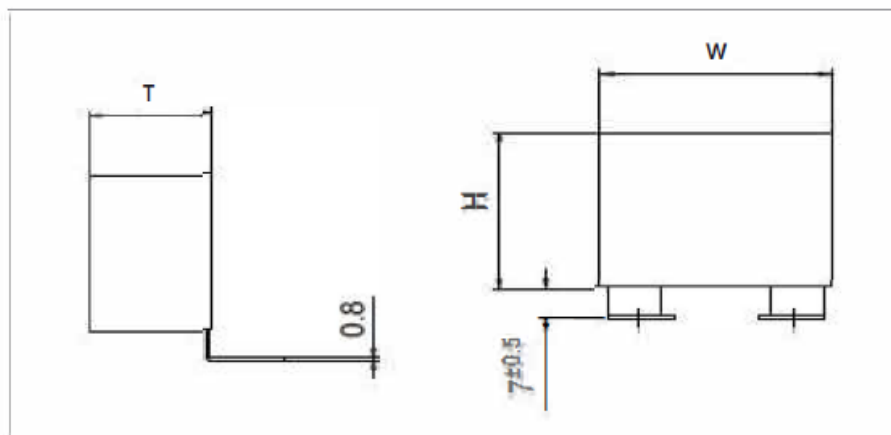
Reference Data

Capacitance	0.047 μ F to 5.6 μ F
Capacitance Tolerance	\pm 5%, \pm 10%
Rated DC Voltage	700Vdc to 3000Vdc
Climatic testing class according to IEC 60068-1	40/85/56
Reference standard	IEC 61071
Maximum application temperature	100°C
Rated temperature	85°C
Dielectric	Polypropylene
Electrodes	Metallized
Construction	Mono
Encapsulation	Encased in flame retardant box filled with resin
Leads	Tin Plated Lug

Marking Code Example (1.0 μ F/ \pm 10%/1600Vdc)


IGBT-SNUBBER
PP-MMPP
1.0 μ F/K/1600V
Lot Number

Dimensions Description



Lug Type U

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C- μ F	Un Vdc	U _{rms} Vac	dv/dt	IPKR Amp	ESR max @100 kHz- m Ω	ESL nH	I _{rms} 100 kHz@ 70°C A	DIMENSION(MM)			Lug Type	Part Number
								W	H	T		
0.47	850	500	1232	579	4.2	36	20	32	33	18	U	121 474 K 2M 1 A
0.47	850	500	758	356	8.2	41	16	41.5	40	20	U	121 474 K 2M 1 B
0.68	850	500	758	516	5.7	41	19	41.5	40	20	U	121 684 K 2M 1 A
1	850	500	758	758	4	41	22	41.5	40	20	U	121 105 K 2M 1 A
1.5	850	500	758	1138	2.7	36	29	42.5	37	28	U	121 155 K 2M 1 A
2	850	500	758	1517	2.1	43	36	42	45	30	U	121 205 K 2M 1 A
2.2	850	500	758	1668	1.9	43	37	42	45	30	U	121 225 K 2M 1 A
2.5	850	500	469	1174	1.7	45	39	57.5	45	30	U	121 255 K 2M 1 A
3	850	500	469	1408	3	45	32	57.5	45	30	U	121 305 K 2M 1 A
3.3	850	500	469	1549	2.8	45	33	57.5	45	30	U	121 335 K 2M 1 A
4	850	500	469	1878	2.3	48	36	57.5	50	35	U	121 405 K 2M 1 A
5	850	500	469	2347	1.9	48	42	57.5	50	35	U	121 505 K 2M 1 A
0.47	1000	600	1344	632	3.9	36	20	32	33	18	U	121 474 K 3A 1 A
0.47	1000	600	827	389	7.6	41	16	41.5	40	20	U	121 474 K 3A 1 B
0.68	1000	600	827	563	5.3	41	20	41.5	40	20	U	121 684 K 3A 1 A
1	1000	600	827	827	3.7	41	23	41.5	40	20	U	121 105 K 3A 1 A
1.5	1000	600	827	1241	2.5	36	30	42.5	37	28	U	121 155 K 3A 1 A
2	1000	600	827	1655	2	43	36	42	45	30	U	121 205 K 3A 1 A
2.2	1000	600	512	1127	3.8	45	29	57.5	45	30	U	121 225 K 3A 1 A
2.5	1000	600	512	1280	3.3	45	30	57.5	45	30	U	121 255 K 3A 1 A
3	1000	600	512	1536	2.8	45	33	57.5	45	30	U	121 305 K 3A 1 A
3.3	1000	600	512	1690	2.6	45	34	57.5	45	30	U	121 335 K 3A 1 A
4	1000	600	512	2049	2.2	48	40	57.5	50	35	U	121 405 K 3A 1 A
0.33	1200	630	1568	518	5	36	19	32	33	18	U	121 334 K 2P 1 A
0.33	1200	630	965	319	9.5	41	15	41.5	40	20	U	121 334 K 2P 1 B
0.47	1200	630	965	454	6.7	41	18	41.5	40	20	U	121 474 K 2P 1 A
0.68	1200	630	965	656	4.7	41	21	41.5	40	20	U	121 684 K 2P 1 A
1	1200	630	965	965	3.3	36	27	42.5	37	28	U	121 105 K 2P 1 A
1.2	1200	630	965	1158	2.8	36	29	42.5	37	28	U	121 125 K 2P 1 A
1.5	1200	630	965	1448	2.3	43	34	42	45	30	U	121 155 K 2P 1 A
2	1200	630	598	1195	3.6	45	29	57.5	45	30	U	121 205 K 2P 1 A
2.2	1200	630	598	1315	3.3	45	30	57.5	45	30	U	121 225 K 2P 1 A
2.5	1200	630	598	1494	2.9	45	32	57.5	45	30	U	121 255 K 2P 1 A
3	1200	630	598	1793	2.5	48	37	57.5	50	35	U	121 305 K 2P 1 A
3.3	1200	630	598	1972	2.3	48	39	57.5	50	35	U	121 335 K 2P 1 A
0.1	2000	700	2241	224	12.9	36	12	32	33	18	U	121 104 K 3D 1 A
0.1	2000	700	1379	138	23.3	41	10	41.5	40	20	U	121 104 K 3D 1 B
0.15	2000	700	2241	336	8.6	36	15	32	33	18	U	121 154 K 3D 1 A
0.15	2000	700	1379	207	15.6	41	12	41.5	40	20	U	121 154 K 3D 1 B
0.22	2000	700	1379	303	10.7	41	14	41.5	40	20	U	121 224 K 3D 1 A
0.33	2000	700	1379	455	7.2	41	17	41.5	40	20	U	121 334 K 3D 1 A
0.47	2000	700	1379	648	5.1	41	20	41.5	40	20	U	121 474 K 3D 1 A
0.68	2000	700	1379	938	3.6	43	26	41.5	44	24	U	121 684 K 3D 1 A
0.82	2000	700	1379	1131	3	43	30	42	45	30	U	121 824 K 3D 1 A

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1	2000	700	854	854	5.1	45	24	57.5	45	30	U	121 105 K 3D 1 A
1.2	2000	700	854	1024	4.3	45	26	57.5	45	30	U	121 125 K 3D 1 A
1.5	2000	700	854	1280	3.5	48	31	57.5	50	35	U	121 155 K 3D 1 A
0.047	3000	750	3361	158	21.9	36	10	32	33	18	U	121 473 K 3F 1 A
0.047	3000	750	2068	97	36.6	41	8	41.5	40	20	U	121 473 K 3F 1 B
0.068	3000	750	3361	229	15.2	36	12	32	33	18	U	121 683 K 3F 1 A
0.068	3000	750	2068	141	25.4	41	10	41.5	40	20	U	121 683 K 3F 1 B
0.1	3000	750	2068	207	17.3	41	12	41.5	40	20	U	121 104 K 3F 1 A
0.22	3000	750	2068	455	8	41	17	41.5	40	20	U	121 224 K 3F 1 A
0.33	3000	750	2068	683	5.4	43	24	42	45	30	U	121 334 K 3F 1 A
0.47	3000	750	1280	602	7.5	45	20	57.5	45	30	U	121 474 K 3F 1 A
0.68	3000	750	1280	871	5.3	48	23	57.5	50	35	U	121 684 K 3F 1 A
0.82	3000	750	1280	1050	4.4	48	28	57.5	50	35	U	121 824 K 3F 1 A

Specific Data

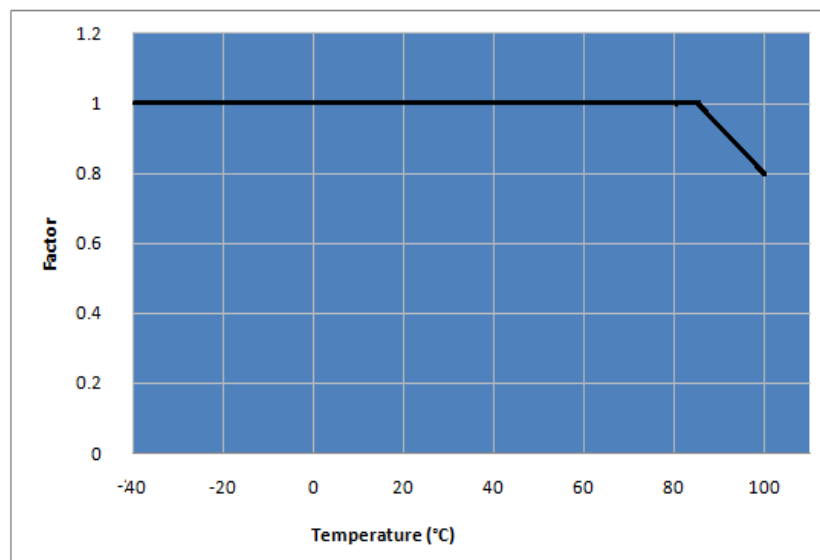
Description

Value

Maximum tangent of loss angle ($\text{Tan}\delta$)	≤ 0.005 at 1 kHz
Voltage proof test between leads	2 times of the rated voltage for 10 second
Insulation resistance or time constant ($R_{is} \times C$) between leads at 100 Vdc	≥ 30000 second

Temperature Derating Graph

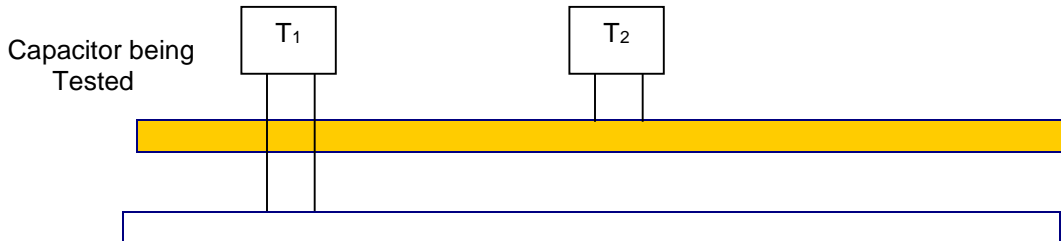
For temperature between 85°C and 100°C a derating factor of 1.25% per °C on the rated voltage V_R has to be applied.



Power Dissipation and Maximum Component Temperature Rise

After applying the A.C voltage to the capacitor with certain frequency, we can measure the hot spot temperature of the capacitor. From that we can calculate ΔT .

ΔT = hot spot temperature – ambient temperature



T_1 is the capacitor under test (Connected in the circuit)

T_2 is capacitor which has no connection

Distance between T_1 and T_2 should be about 50mm and 100mm from other components. To avoid radiation or convection, the capacitor should be tested in a wind-free box. The capacitor under test is separated by polystyrene.

$$\Delta T_{\max} = T_1 - T_2$$

at one frequency level the ΔT_{\max} reach 10°C . That is the frequency which we have to start frequency derating.

Storage Conditions

Avoid storing the capacitors in places where the environmental conditions differ from the following:

- Storage time: ≤ 24 months from the date marked on the label glued to the package.
- Temperature: -40 to 80°C
- Humidity:
 - Average per year: $\leq 70\%$
 - For 30 full days randomly distributed throughout the year: $\leq 85\%$
 - Dew: absent

After a longer period of storage or use, the tolerance can increase; but, according to standard specification, it may never exceed twice the value measured at the time of delivery.

Disclaimer

All our capacitors are designed, manufactured and tested to specifications. We strictly adhere to standards in procurement of materials, in the laid down manufacturing processes and consistently apply stringent process controls and testing parameters. This ensures that our capacitors always perform to the offered specifications.

Appropriateness of use in a specific circuit and fitness to a particular application however needs to be verified and its reliability through expected lifetime is required to be validated by the customer. Deki's responsibility is limited to ensuring that the capacitor performs as claimed in the specification/ data sheets provided by Deki. Deki specifically disclaims any implied warranties of fitness for any particular purpose. Liability, in any case is limited to the price paid for the capacitors.