

# Gas Discharge Tube

## 3.5x4.0mm 2 Poles Square Type

MGT4-2H series

**MERITEK**

### FEATURE

- Storage and Operating Temperature: -40°C ~ +85°C
- Micro-Gap Design
- Stable Breakdown Voltage
- High Insulation Resistance, High Holdover Voltage
- Low Capacitance ( $\leq 0.5\text{pF}$ )
- Large Transient Current Absorbing Capability
- Meets MSL level 1, per J-STD-020
- UL Safety Approved Certification No: E223045



### PART NUMBERING SYSTEM



MGT    4    K    090N    CB2H  
 (1)    (2)    (3)    (4)    (5)

No	Item	Digit	Description	
(1)	Product Code	MGT	MGT: Gas Discharge Tube series	
(2)	Size Code	4	Diameter: 4mm	DxT : 3.5x4.0mm
(3)	Discharge Current	K	K: 3KA	8/20 $\mu\text{s}$ , 10times
(4)	Breakage Voltage, Tolerance	090N	090: 90 $\pm$ 30%	DC Spark Over Voltage, 100V/s
(5)	Series Code	CB2H	2 Poles Square Type	Internal Control Reference

### ELECTRICAL CHARACTERISTICS

Part Number	DC Spark-over Voltage	Impulse Spark-over Voltage max	Impulse Discharge Current	Alternating Discharge Current	Impulse Discharge Voltage	Minimum Insulation Resistance		Maximum Capacitance
	100V/s	1KV/ $\mu\text{s}$	8/20 $\mu\text{s}$ , 10times	50Hz, 1sec	10/700K $\mu\text{s}$ 10times	VT	IR	1MHz
3.5x4.0mm	(V)	(V)	(KA)	(A)	(KV)	(V <sub>DC</sub> )	(G $\Omega$ )	(pF)
MGT4K090NCB2H	90 $\pm$ 30%	650	3	3	6	50	1	0.5
MGT4K150NCB2H	150 $\pm$ 30%	650	3	3	6	100	1	0.5
MGT4K200NCB2H	200 $\pm$ 30%	750	3	3	6	100	1	0.5
MGT4K250NCB2H	250 $\pm$ 30%	750	3	3	6	100	1	0.5
MGT4K300NCB2H	300 $\pm$ 30%	850	3	3	6	100	1	0.5
MGT4K350NCB2H	350 $\pm$ 30%	850	3	3	6	100	1	0.5
MGT4K400NCB2H	400 $\pm$ 30%	900	3	3	6	100	1	0.5
MGT4K470NCB2H	470 $\pm$ 30%	1000	3	3	6	250	1	0.5

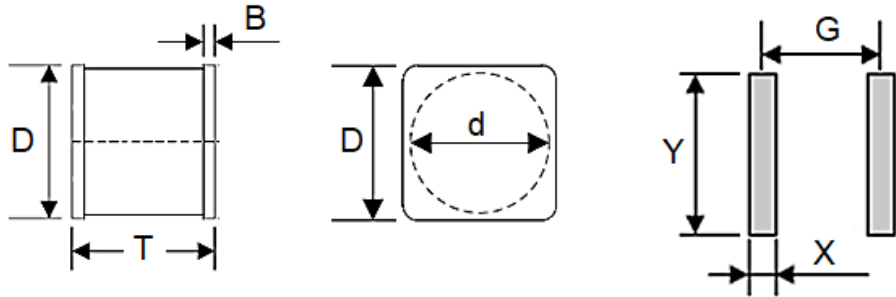
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### DIMENSION AND RECOMMENDED PAD SIZE



Part Series	D	T	B	d	X	Y	G
MGT4-2H	3.5 ±0.2	4.0±0.3	0.4±0.2	3.5±0.2	1.0	4.0	5.0

Unit: mm

### RELIABILITY AND TEST CONDITON

Item	Test Condition	Requirement
DC Spark-over Voltage	The voltage is measured with voltage ramp $dv/dt = 100V/s$ .	To meet the specified value
Maximum Impulse Spark-over Voltage	The voltage is measured with voltage ramp $dv/dt = 1000V/\mu s$ .	
Impulse Discharge Current	<p>Maximum 8/20 <math>\mu s</math> surge current that can be applied between two electrodes, 5 positive and 5 negative surges, with 3 minutes interval time.</p> <p>Crest Value</p> <p>Current (%)</p> <p>Time</p> <p>Impulse Width</p>	To meet the specified value
Alternating Discharge Current	Rated RMS value of AC current at 50Hz, 1 second for 10 times with interval time 3 minutes. DC spark-over voltage shall not be change more than $\pm 25\%$ from its initial value. $IR > 10^8 \Omega$	To meet the specified value
Insulation Resistance	The resistance of gas tube shall be measured between two electrodes.	To meet the specified value
Capacitance	The capacitance of gas tube shall be measured between two electrodes.	

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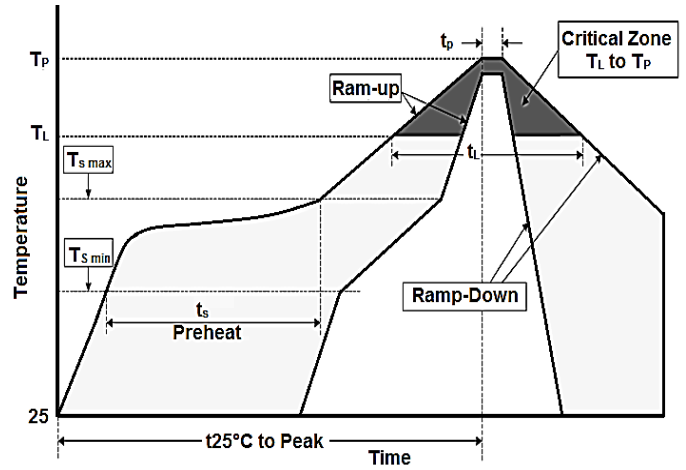
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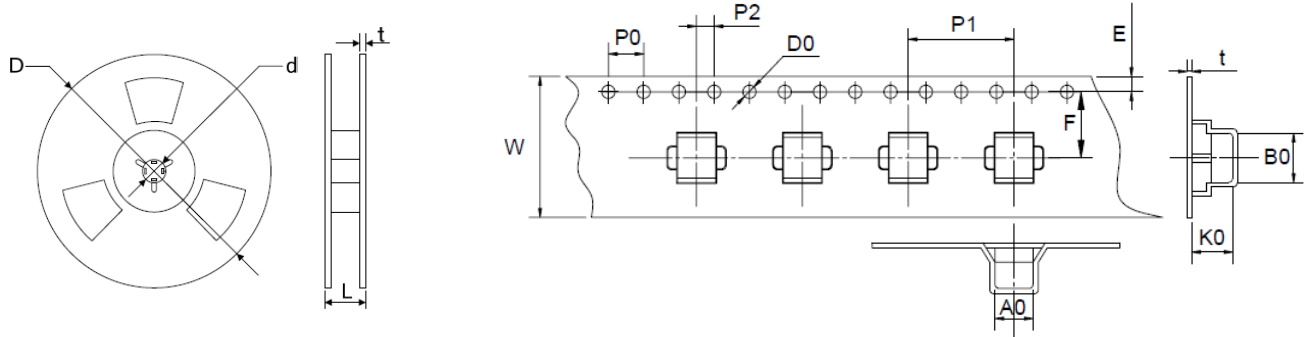
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### RECOMMENDED SOLDERING PROFILES

Reflow Soldering Condition		
Pre Heat	Temp. Min $T_{s(min)}$	150°C
	Temp. Max $T_{s(max)}$	200°C
	Time (min. to max.) ( $t_s$ )	60~180 sec
Average ramp up rate ( $T_L$ ) to peak		3°C/sec Max.
$T_{s(max)}$ to $T_L$ (Ramp-up rate)		3°C/sec Max.
Reflow	Temp. ( $T_L$ )	217°C
	Time (min. to max.) ( $t_L$ )	60~150 sec
Peak Temperature ( $T_P$ )		260°C
Time within 5°C of Peak Temp ( $t_p$ )		20-40 sec
Ramp-down Rate		6°C/sec Max.
Time (25°C to Peak Temp)		8 mins Max.



### PACKAGING SPECIFICATION



Part Series	D ±2.0	d ±0.50	L ±2.00	t ±0.20	W ±0.20	P0 ±0.10	P1 ±0.20	P2 ±0.10	D0 ±0.1	E ±0.10	F ±0.10	A0 ±0.10	K0 ±0.10	B0 ±0.10	T ±0.10	QTY pcs
MGT4-2H	330	13.00	16.00	2.00	16.00	8.00	4.00	2.00	1.50	1.75	7.50	3.80	3.80	4.30	0.30	2000

Unit: mm

\*Specifications subject to change without notice.