

Surface Mount Type

Series: **TG** Type: **V**

■ Features

- Endurance: 125 °C 1000 h to 2000 h
- Miniaturization (40 % less than TA Series)
- Low ESR (Low temp)
- Vibration-proof product is available upon request. ($\phi 8$ mm and larger)
- RoHS directive compliant (Parts No $\phi 8$ to $\phi 10$: **EEE***, $\phi 12.5$ to $\phi 18$: **EEV***)



■ Specifications

Category Temp. Range	-40 °C to +125 °C									
Rated W.V. Range	10 V.DC to 100 V.DC									
Nominal Cap. Range	10 μF to 4700 μF									
Capacitance Tolerance	±20 % (120 Hz/+20 °C)									
DC Leakage Current	I ≤ 0.01 CV After 2 minutes									
tan δ	Please see the attached standard products list									
Characteristics at Low Temperature	W.V. (V)	10	16	25	35	50	63	80	100	(Impedance ratio at 120 Hz)
	Z(-25 °C)/Z(+20 °C)	3	2	2	2	2	2	2	2	
	Z(-40 °C)/Z(+20 °C)	6	4	4	3	3	3	3	3	
Endurance	After applying rated working voltage for 1000 hours (ø8×6.2), 2000 hours (ø8×10.2≤) at +125 °C±2 °C and then being stabilized at +20 °C, capacitors shall meet the following limits.									
	Capacitance change	±30 % of initial measured value (code U : ±35 %)								
	tan δ	≤ 300 % of initial specified value (code U : ±350 %)								
	DC leakage current	≤ initial specified value								
Shelf Life	After storage for 1000 hours at +125 °C±2 °C with no voltage applied and then being stabilized at +20 °C, capacitors shall meet the limits specified in Endurance (With voltage treatment)									
Resistance to Soldering Heat	After reflow soldering and then being stabilized at +20 °C, capacitors shall meet the following limits.									
	Capacitance change	±10 % of initial measured value								
	tan δ	≤ initial specified value								
	DC leakage current	≤ initial specified value								

■ Frequency correction factor for ripple current

	Frequency (Hz)			
	120	1 k	10 k	100 k to
Correction factor	0.65	0.85	0.95	1.00

■ Marking

Example : 10 V 100 µF, 10 V 1000 µF
Marking coloc : BLACK
Lead-Free products ($\leq \phi 10$)

Rated Voltage Mark

Negative polarity marking (-)

Capacitance (µF)

Series identification

Mark for Lead-Free Products Black Dot (Square)

Lot number

Lead-Free products ($\geq \phi 12.5$)

Rated Voltage Mark

Negative polarity marking (-)

Capacitance (µF)

Series identification

Lot number

Rated Voltage Mark			
A	10 V	H	50 V
C	16 V	J	63 V
E	25 V	K	80 V
V	35 V	2A	100 V

■ Dimensions in mm (not to scale)

0.3 max.

0.5 max.

L

I

A±0.2

B±0.2

W

P

() Reference size

Pressure Relief ($\phi 10$ and larger)

Size code	D	L	A, B	H	I	W	P	K
E	8.0	6.2±0.3	8.3	9.5 max.	3.4	0.65±0.1	2.2	0.35 $^{+0.15}_{-0.20}$
F	8.0	10.2±0.3	8.3	10.0 max.	3.4	0.90±0.2	3.1	0.70±0.20
G	10.0	10.2±0.3	10.3	12.0 max.	3.5	0.90±0.2	4.6	0.70±0.20
H13	12.5	13.5±0.5	13.5	15.0 max.	4.7	0.90±0.3	4.4	0.70±0.30
J16	16.0	16.5±0.5	17.0	19.0 max.	5.5	1.20±0.3	6.7	0.70±0.30
K16	18.0	16.5±0.5	19.0	21.0 max.	6.7	1.20±0.3	6.7	0.70±0.30

(mm)

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Should a safety concern arise regarding this product, please be sure to contact us immediately.

03 Sep. 2011

■ Standard Products

Endurance : 125 °C 1000 h ($\phi 8 \times 10.2 \leq$: 2000 h)

W.V.	Cap. (±20 %)	Case size			Specification			Part No. (RoHS:compliant)	Reflow	Min. Packaging Q'ty	
		Dia.	Length	*Size Code	Ripple Current (100 kHz) (+125 °C) (mA r.m.s.)	ESR (100 kHz) (+20 °C) (Ω)	tan δ (120 Hz) (+20 °C)			Taping	
(V)	(μF)	(mm)	(mm)							(pcs)	
10	100	8	6.2	E	100	1.00	0.30	EEETG1A101P	(2)	1000	
	220	8	6.2	(E)	100	1.00	0.30	EEETG1A221UP	(2)	1000	
		8	10.2	F	197	0.50	0.30	EEETG1A221P	(2)	500	
	330	8	10.2	(F)	197	0.50	0.30	EEETG1A331UP	(2)	500	
		10	10.2	G	270	0.30	0.30	EEETG1A331P	(2)	500	
	470	10	10.2	(G)	270	0.30	0.30	EEETG1A471UP	(2)	500	
	1000	12.5	13.5	H13	800	0.12	0.30	EEVTG1A102Q	(3)	200	
	1500	12.5	13.5	(H13)	800	0.12	0.30	EEVTG1A152UQ	(3)	200	
	2200	16	16.5	J16	1100	0.08	0.32	EEVTG1A222M	(3)	125	
	3300	16	16.5	(J16)	1100	0.08	0.34	EEVTG1A332UM	(3)	125	
18		16.5	K16	1300	0.075	0.34	EEVTG1A332M	(3)	125		
	4700	18	16.5	K16	1300	0.075	0.36	EEVTG1A472M	(3)	125	
16	100	8	10.2	F	197	0.50	0.23	EEETG1C101P	(2)	500	
	220	8	10.2	(F)	197	0.50	0.23	EEETG1C221UP	(2)	500	
		10	10.2	G	270	0.30	0.23	EEETG1C221P	(2)	500	
	330	10	10.2	(G)	270	0.30	0.23	EEETG1C331UP	(2)	500	
		12.5	13.5	H13	800	0.12	0.23	EEVTG1C331Q	(3)	200	
	470	12.5	13.5	H13	800	0.12	0.23	EEVTG1C471Q	(3)	200	
	680	12.5	13.5	H13	800	0.12	0.23	EEVTG1C681Q	(3)	200	
	1000	12.5	13.5	(H13)	800	0.12	0.23	EEVTG1C102UQ	(3)	200	
		16	16.5	J16	1100	0.08	0.23	EEVTG1C102M	(3)	125	
	2200	16	16.5	(J16)	1100	0.08	0.25	EEVTG1C222UM	(3)	125	
		18	16.5	K16	1300	0.075	0.25	EEVTG1C222M	(3)	125	
	3300	18	16.5	K16	1300	0.075	0.27	EEVTG1C332M	(3)	125	
	25	47	8	6.2	E	100	1.00	0.18	EEETG1E470P	(2)	1000
		100	8	6.2	(E)	100	1.00	0.18	EEETG1E101UP	(2)	1000
8			10.2	F	197	0.50	0.18	EEETG1E101P	(2)	500	
220		8	10.2	(F)	197	0.50	0.18	EEETG1E221UP	(2)	500	
		10	10.2	G	270	0.30	0.18	EEETG1E221P	(2)	500	
330		10	10.2	(G)	270	0.30	0.18	EEETG1E331UP	(2)	500	
		12.5	13.5	H13	800	0.12	0.18	EEVTG1E331Q	(3)	200	
470		12.5	13.5	H13	800	0.12	0.18	EEVTG1E471Q	(3)	200	
680		12.5	13.5	(H13)	800	0.12	0.18	EEVTG1E681UQ	(3)	200	
		16	16.5	J16	1100	0.08	0.18	EEVTG1E681M	(3)	125	
1000		16	16.5	(J16)	1100	0.08	0.18	EEVTG1E102UM	(3)	125	
		18	16.5	K16	1300	0.075	0.18	EEVTG1E102M	(3)	125	
2200		18	16.5	K16	1300	0.075	0.20	EEVTG1E222M	(3)	125	
35		33	8	6.2	E	100	1.00	0.16	EEETG1V330P	(2)	1000
	47	8	6.2	(E)	100	1.00	0.16	EEETG1V470UP	(2)	1000	
		8	10.2	F	197	0.50	0.16	EEETG1V470P	(2)	500	
	100	8	10.2	(F)	197	0.50	0.16	EEETG1V101UP	(2)	500	
		10	10.2	G	270	0.30	0.16	EEETG1V101P	(2)	500	
	220	10	10.2	(G)	270	0.30	0.16	EEETG1V221UP	(2)	500	
	330	12.5	13.5	H13	800	0.12	0.16	EEVTG1V331Q	(3)	200	
35	470	12.5	13.5	(H13)	800	0.12	0.16	EEVTG1V471UQ	(3)	200	
		16	16.5	J16	1100	0.08	0.16	EEVTG1V471M	(3)	125	
	680	16	16.5	(J16)	1100	0.08	0.16	EEVTG1V681UM	(3)	125	
		18	16.5	K16	1300	0.075	0.16	EEVTG1V681M	(3)	125	
	1000	18	16.5	K16	1300	0.075	0.16	EEVTG1V102M	(3)	125	

*Size code():Miniaturization product

The taping dimensions are explained on EE188 of our Catalog. Please use it as a reference guide.

Reflow Profile(Fig-1 to Fig-11) listed on EE186 of our Catalog.

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00 Sep. 2010

Standard Products

Endurance : 125 °C 1000 h ($\phi 8 \times 10.2 \leq$: 2000 h)

W.V. (V)	Cap. ($\pm 20\%$) (μF)	Case size			Specification			Part No. (RoHS:compliant)	Reflow	Min. Packaging Q'ty
		Dia. (mm)	Length (mm)	*Size Code	Ripple Current (100 kHz) (+125 °C) (mA r.m.s.)	ESR (100 kHz) (+20 °C) (Ω)	$\tan \delta$ (120 Hz) (+20 °C)			Taping (pcs)
50	10	8	6.2	E	80	1.60	0.14	EEETG1H100P	(2)	1000
	22	8	6.2	E	80	1.60	0.14	EEETG1H220P	(2)	1000
	33	8	6.2	(E)	80	1.60	0.14	EEETG1H330UP	(2)	1000
		8	10.2	F	133	0.75	0.14	EEETG1H330P	(2)	500
	47	8	10.2	(F)	133	0.75	0.14	EEETG1H470UP	(2)	500
		10	10.2	G	221	0.50	0.14	EEETG1H470P	(2)	500
	100	10	10.2	(G)	221	0.50	0.14	EEETG1H101UP	(2)	500
	220	12.5	13.5	H13	600	0.23	0.14	EEVTG1H221Q	(3)	200
	330	12.5	13.5	H13	600	0.23	0.14	EEVTG1H331Q	(3)	200
	470	16	16.5	J16	900	0.15	0.14	EEVTG1H471M	(3)	125
	680	16	16.5	(J16)	900	0.15	0.14	EEVTG1H681UM	(3)	125
		18	16.5	K16	950	0.14	0.14	EEVTG1H681M	(3)	125
63	1000	18	16.5	K16	950	0.14	0.14	EEVTG1H102M	(3)	125
	10	8	6.2	E	55	2.20	0.12	EEETG1J100P	(2)	1000
	22	8	10.2	F	100	1.00	0.12	EEETG1J220P	(2)	500
	33	8	10.2	(F)	100	1.00	0.12	EEETG1J330UP	(2)	500
		10	10.2	G	150	0.80	0.12	EEETG1J330P	(2)	500
	47	8	10.2	(F)	100	1.00	0.12	EEETG1J470UP	(2)	500
		10	10.2	G	150	0.80	0.12	EEETG1J470P	(2)	500
	100	10	10.2	(G)	150	0.80	0.12	EEETG1J101UP	(2)	500
		12.5	13.5	H13	350	0.26	0.12	EEVTG1J101Q	(3)	200
	220	12.5	13.5	H13	350	0.26	0.12	EEVTG1J221Q	(3)	200
	330	16	16.5	J16	500	0.18	0.12	EEVTG1J331M	(3)	125
	470	16	16.5	J16	500	0.18	0.12	EEVTG1J471M	(3)	125
80	10	8	10.2	F	70	1.30	0.12	EEETG1K100P	(2)	500
	22	8	10.2	(F)	70	1.30	0.12	EEETG1K220UP	(2)	500
		10	10.2	G	90	1.00	0.12	EEETG1K220P	(2)	500
	33	8	10.2	(F)	70	1.30	0.12	EEETG1K330UP	(2)	500
		10	10.2	G	90	1.00	0.12	EEETG1K330P	(2)	500
	47	10	10.2	(G)	90	1.00	0.12	EEETG1K470UP	(2)	500
		12.5	13.5	H13	250	0.42	0.12	EEVTG1K470Q	(3)	200
	100	12.5	13.5	(H13)	250	0.42	0.12	EEVTG1K101UQ	(3)	200
		16	16.5	J16	350	0.30	0.12	EEVTG1K101M	(3)	125
	220	16	16.5	(J16)	350	0.30	0.12	EEVTG1K221UM	(3)	125
		18	16.5	K16	400	0.28	0.12	EEVTG1K221M	(3)	125
	330	16	16.5	(J16)	350	0.30	0.12	EEVTG1K331UM	(3)	125
		18	16.5	K16	400	0.28	0.12	EEVTG1K331M	(3)	125
	470	18	16.5	K16	400	0.28	0.12	EEVTG1K471M	(3)	125
	10	8	10.2	F	70	1.30	0.10	EEETG2A100P	(2)	500
	22	8	10.2	(F)	70	1.30	0.10	EEETG2A220UP	(2)	500
		10	10.2	G	90	1.00	0.10	EEETG2A220P	(2)	500
100	33	10	10.2	G	90	1.00	0.10	EEETG2A330P	(2)	500
	47	12.5	13.5	H13	250	0.42	0.10	EEVTG2A470Q	(3)	200
	100	16	16.5	J16	350	0.30	0.10	EEVTG2A101M	(3)	125
	220	18	16.5	K16	400	0.28	0.10	EEVTG2A221M	(3)	125
	330	18	16.5	K16	400	0.28	0.10	EEVTG2A331M	(3)	125

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The taping dimensions are explained on EE188 of our Catalog. Please use it as a reference guide.

Reflow Profile(Fig-1 to Fig-11) listed on EE186 of our Catalog.