Surface Mount Type

Series: TG Type : V

Country of Origin
Japan

■ Features

Endurance:125°C 1000 to 2000 h
Miniaturization(40% less than TA Series)
Low ESR(Low temp)
Vibration-proof product is available upon request.(φ8 ≦)

■ Application

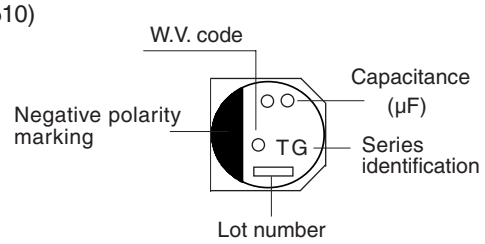
Corresponds to use in the car engine room.
The best for an electronically controlled unit (ECU, ABS etc).

■ Specifications

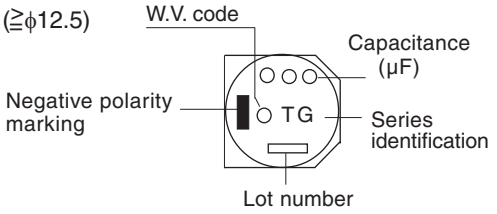
Category temp. range	-40 to +125°C									
Rated W.V. Range	10 to 100 V .DC									
Nominal Cap. Range	10 to 4700 μ F									
Capacitance Tolerance	±20 % (120Hz/+20°C)									
DC Leakage Current	I ≦ 0.01 CV or 3(μ A) after 2 minutes (whichever, greater)									
tan δ	Please see the attached standard products list									
Characteristics at Low Temperature	W.V. (V)	10	16	25	35	50	63	80	100	(Inpedance ratio at 120Hz)
	-25 / +20 °C	3	2	2	2	2	2	2	2	
	-40 / +20 °C	6	4	4	3	3	3	3	3	
Endurance	After applying rated working voltage for 1000 hours(φ8x6.2), 2000 hours(8x10.2≦) at +125 ±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±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 (Refer to page 184 for recommendable temperature profile.) and then being stabilized at +20°C, capacitor shall meet the following limits.									
	Capacitance change	±10 % of initial measured value								
	tan δ	≦ initial specified value								
	DC leakage current	≦ initial specified value								

■ Marking

(≦φ10)



(≧φ12.5)



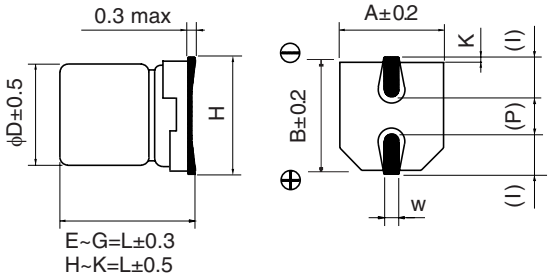
W.V. code

V	10	16	25	35
Code	A	C	E	V

V	50	63	80	100
Code	H	J	K	2A

■ Dimensions in mm (not to scale)

( ) reference size



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

■ Case size VS Capacitance, ESR and Ripple current ESR;(Ω/100kHz,+20°C),Ripple current ;(mA r.m.s./100kHz+125°C)

W.V. (V) / Capacitance (μF)	10				16				25			
	size	ESR 20°C	ESR -40°C	Ripple current	size	ESR 20°C	ESR -40°C	Ripple current	size	ESR 20°C	ESR -40°C	Ripple current
47									E	1.0	20	100
100	E	1.0	20	100	F	0.5	10	197	(E)	(1.0)	(20)	(100)
									F	0.5	10	197
220	(E)	(1.0)	(20)	(100)	(F)	(0.5)	(10)	(197)	(F)	(0.5)	(10)	(197)
	F	0.5	10	197	G	0.3	6.0	270	G	0.3	6.0	270
330	(F)	(0.5)	(10)	(197)	(G)	(0.3)	(6.0)	(270)	(G)	(0.3)	(6.0)	(270)
	G	0.3	6.0	270	H13	0.12	1.8	800	H13	0.12	1.8	800
470	(G)	(0.3)	(6.0)	(270)	H13	0.12	1.8	800	H13	0.12	1.8	800
680					H13	0.12	1.8	800	(H13)	(0.12)	(1.8)	(800)
									J16	0.08	1.2	1100
1000	H13	0.12	1.8	800	(H13)	(0.12)	(1.8)	(800)	(J16)	(0.08)	(1.2)	(1100)
					J16	0.08	1.2	1100	K16	0.075	1.1	1300
1500	(H13)	(0.12)	(1.8)	(800)								
2200	J16	0.08	1.2	1100	(J16)	(0.08)	(1.2)	(1100)	K16	0.075	1.1	1300
					K16	0.075	1.1	1300				
3300	(J16)	(0.08)	(1.2)	(1100)	K16	0.075	1.1	1300				
	K16	0.075	1.1	1300								
4700	K16	0.075	1.1	1300								

W.V. (V) / Capacitance (μF)	35				50				63			
	size	ESR 20°C	ESR -40°C	Ripple current	size	ESR 20°C	ESR -40°C	Ripple current	size	ESR 20°C	ESR -40°C	Ripple current
10					E	1.6	32	80	E	2.2	55	55
22					E	1.6	32	80	F	1	25	100
33	E	1.0	20	100	(E)	(1.6)	(32)	(80)	(F)	(1)	(25)	(100)
					F	0.75	15	133	G	0.8	20	150
47	(E)	(1.0)	(20)	(100)	(F)	(0.75)	(15)	(133)	(F)	(1)	(25)	(100)
	F	0.5	10	197	G	0.5	10	221	G	0.8	20	150
100	(F)	(0.5)	(10)	(197)					(G)	(0.8)	(20)	(150)
	G	0.3	6.0	270	(G)	(0.5)	(10)	(221)	H13	0.26	5.2	350
220	(G)	(0.3)	(6.0)	(270)	H13	0.23	3.4	600	H13	0.26	5.2	350
330	H13	0.12	1.8	800	H13	0.23	3.4	600	J16	0.18	3.6	500
470	(H13)	(0.12)	(1.8)	(800)	J16	0.15	2.2	900	J16	0.18	3.6	500
	J16	0.08	1.2	1100								
680	(J16)	(0.08)	(1.2)	(1100)	(J16)	(0.15)	(2.2)	(900)				
	K16	0.075	1.1	1300	K16	0.14	2.1	950				
1000	K16	0.075	1.1	1300	K16	0.14	2.1	950				

W.V. (V) / Capacitance (μF)	80				100			
	size	ESR 20°C	ESR -40°C	Ripple current	size	ESR 20°C	ESR -40°C	Ripple current
10	F	1.3	32	70	F	1.3	32	70
22	(F)	(1.3)	(32)	(70)	(F)	(1.3)	(32)	(70)
	G	1.0	25	90	G	1.0	25	90
33	(F)	(1.3)	(32)	(70)	G	1.0	25	90
	G	1.0	25	90				
47	(G)	(1.0)	(25)	(90)	H13	0.42	8.4	250
	H13	0.42	8.4	250				
100	(H13)	(0.42)	(8.4)	(250)	J16	0.3	6.0	350
	J16	0.3	6.0	350				
220	(J16)	(0.3)	(6.0)	(350)	K16	0.28	5.6	400
	K16	0.28	5.6	400				
330	(J16)	(0.3)	(6.0)	(350)	K16	0.28	5.6	400
	K16	0.28	5.6	400				
470	K16	0.28	5.6	400				

( ) Shows miniaturized size
Suffix : U

■ Standard Products

W.V. (V)	Cap (±20%) (μF)	Case Size Dia. (mm)	Length (mm)	Size code	Specification Ripple current (100kHz) (+125°C) (mA)	ESR (100kHz) (+20°C) (Ω)	tanδ (120Hz) (+20°C)	Part No.	Min. Packaging Q'ty Taping (pcs)
10	100	8	6.2	E	100	1.0	0.30	EEVTG1A101P	1000
	220	(8)	(6.2)	(E)	(100)	(1.0)	0.30	EEVTG1A221UP	1000
		8	10.2	F	197	0.5	0.30	EEVTG1A221P	500
	330	(8)	(10.2)	(F)	(197)	(0.5)	0.30	EEVTG1A331UP	500
		10	10.2	G	270	0.3	0.30	EEVTG1A331P	500
	470	(10)	(10.2)	(G)	(270)	(0.3)	0.30	EEVTG1A471UP	500
	1000	12.5	13.5	H13	800	0.12	0.30	EEVTG1A102Q	200
	1500	(12.5)	(13.5)	(H13)	(800)	(0.12)	0.30	EEVTG1A152UQ	200
	2200	16	16.5	J16	1100	0.08	0.32	EEVTG1A222M	125
	3300	(16)	(16.5)	(J16)	(1100)	(0.08)	0.34	EEVTG1A332UM	125
		18	16.5	K16	1300	0.075	0.34	EEVTG1A332M	125
	4700	18	16.5	K16	1300	0.075	0.36	EEVTG1A472M	125
16	100	8	10.2	F	197	0.5	0.23	EEVTG1C101P	500
	220	(8)	(10.2)	(F)	(197)	(0.5)	0.23	EEVTG1C221UP	500
		10	10.2	G	270	0.3	0.23	EEVTG1C221P	500
	330	(10)	(10.2)	(G)	(270)	(0.3)	0.23	EEVTG1C331UP	500
		12.5	13.5	H13	800	0.12	0.23	EEVTG1C331Q	200
	470	12.5	13.5	H13	800	0.12	0.23	EEVTG1C471Q	200
	680	12.5	13.5	H13	800	0.12	0.23	EEVTG1C681Q	200
	1000	(12.5)	(13.5)	(H13)	(800)	(0.12)	0.23	EEVTG1C102UQ	200
		16	16.5	J16	1100	0.08	0.23	EEVTG1C102M	125
	2200	(16)	(16.5)	(J16)	(1100)	(0.08)	0.25	EEVTG1C222UM	125
		18	16.5	K16	1300	0.075	0.25	EEVTG1C222M	125
	3300	18	16.5	K16	1300	0.075	0.27	EEVTG1C332M	125
25	47	8	6.2	E	100	1.0	0.18	EEVTG1E470P	1000
	100	(8)	(6.2)	(E)	(100)	(1.0)	0.18	EEVTG1E101UP	1000
		8	10.2	F	197	0.5	0.18	EEVTG1E101P	500
	220	(8)	(10.2)	(F)	(197)	(0.5)	0.18	EEVTG1E221UP	500
		10	10.2	G	270	0.3	0.18	EEVTG1E221P	500
	330	(10)	(10.2)	(G)	(270)	(0.3)	0.18	EEVTG1E331UP	500
		12.5	13.5	H13	800	0.12	0.18	EEVTG1E331Q	200
	470	12.5	13.5	H13	800	0.12	0.18	EEVTG1E471Q	200
	680	(12.5)	(13.5)	(H13)	(800)	(0.12)	0.18	EEVTG1E681UQ	200
		16	16.5	J16	1100	0.08	0.18	EEVTG1E681M	125
	1000	(16)	(16.5)	(J16)	(1100)	(0.08)	0.18	EEVTG1E102UM	125
		18	16.5	K16	1300	0.075	0.18	EEVTG1E102M	125
	2200	18	16.5	K16	1300	0.075	0.20	EEVTG1E222M	125
35	33	8	6.2	E	100	1.0	0.16	EEVTG1V330P	1000
	47	(8)	(6.2)	(E)	(100)	(1.0)	0.16	EEVTG1V470UP	1000
		8	10.2	F	197	0.5	0.16	EEVTG1V470P	500
	100	(8)	(10.2)	(F)	(197)	(0.5)	0.16	EEVTG1V101UP	500
		10	10.2	G	270	0.3	0.16	EEVTG1V101P	500
	220	(10)	(10.2)	(G)	(270)	(0.3)	0.16	EEVTG1V221UP	500
	330	12.5	13.5	H13	800	0.12	0.16	EEVTG1V331Q	1000

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Endurance : 125°C 1000 to 2000h

■ Standard Products

W.V. (V)	Cap (±20%) (μF)	Case Size Dia. (mm)	Length (mm)	Size code	Specification Ripple current (100kHz) (+125°C) (mA)	ESR (100kHz) (+20°C) (Ω)	tan δ (120Hz) (+20°C)	Part No.	Min. Packaging Q'ty Taping (pcs)
35	470	12.5	13.5	(H13)	(800)	(0.12)	0.16	EEVTG1V471UQ	200
		16	16.5	J16	1100	0.08	0.16	EEVTG1V471M	125
	680	(16)	(16.5)	(J16)	(1100)	(0.08)	0.16	EEVTG1V681UM	125
		18	16.5	K16	1300	0.075	0.16	EEVTG1V681M	125
	1000	18	16.5	K16	1300	0.075	0.16	EEVTG1V102M	125
50	10	8	6.2	E	80	1.6	0.14	EEVTG1H100P	1000
	22	8	6.2	E	80	1.6	0.14	EEVTG1H220P	1000
	33	(8)	(6.2)	(E)	(80)	(1.6)	0.14	EEVTG1H330UP	1000
		8	10.2	F	133	0.75	0.14	EEVTG1H330P	500
	47	(8)	(10.2)	(F)	(133)	(0.75)	0.14	EEVTG1H470UP	500
		10	10.2	G	221	0.5	0.14	EEVTG1H470P	500
	100	(10)	(10.2)	(G)	(221)	(0.5)	0.14	EEVTG1H101UP	500
	220	12.5	13.5	H13	600	0.23	0.14	EEVTG1H221Q	200
	330	12.5	13.5	H13	600	0.23	0.14	EEVTG1H331Q	200
	470	16	16.5	J16	900	0.15	0.14	EEVTG1H471M	125
	680	(16)	(16.5)	(J16)	(900)	(0.15)	0.14	EEVTG1H681UM	125
		18	16.5	K16	950	0.14	0.14	EEVTG1H681M	125
	1000	18	16.5	K16	950	0.14	0.14	EEVTG1H102M	125
63	10	8	6.2	E	55	2.2	0.12	EEVTG1J100P	1000
	22	8	10.2	F	100	1	0.12	EEVTG1J220P	500
	33	(8)	(10.2)	(F)	(100)	(1)	0.12	EEVTG1J330UP	500
		10	10.2	G	150	0.8	0.12	EEVTG1J330P	500
	47	(8)	(10.2)	(F)	(100)	(1)	0.12	EEVTG1J470UP	500
		10	10.2	G	150	0.8	0.12	EEVTG1J470P	500
	100	(10)	(10.2)	(G)	(150)	(0.8)	0.12	EEVTG1J101UP	500
		12.5	13.5	H13	350	0.26	0.12	EEVTG1J101Q	200
	220	12.5	13.5	H13	350	0.26	0.12	EEVTG1J221Q	200
	330	16	16.5	J16	500	0.18	0.12	EEVTG1J331M	125
	470	16	16.5	J16	500	0.18	0.12	EEVTG1J471M	125
80	10	8	10.2	F	70	1.3	0.12	EEVTG1K100P	500
	22	(8)	(10.2)	(F)	(70)	(1.3)	0.12	EEVTG1K220UP	500
		10	10.2	G	90	1.0	0.12	EEVTG1K220P	500
	33	(8)	(10.2)	(F)	(70)	(1.3)	0.12	EEVTG1K330UP	500
		10	10.2	G	90	1.0	0.12	EEVTG1K330P	500
	47	(10)	(10.2)	(G)	(90)	(1.0)	0.12	EEVTG1K470UP	500
		12.5	13.5	H13	250	0.42	0.12	EEVTG1K470Q	200
	100	(12.5)	(13.5)	(H13)	(250)	(0.42)	0.12	EEVTG1K101UQ	200
		16	16.5	J16	350	0.3	0.12	EEVTG1K101M	125
	220	(16)	(16.5)	(J16)	(350)	(0.3)	0.12	EEVTG1K221UM	125
		18	16.5	K16	400	0.28	0.12	EEVTG1K221M	125
	330	(16)	(16.5)	(J16)	(350)	(0.3)	0.12	EEVTG1K331UM	125
		18	16.5	K16	400	0.28	0.12	EEVTG1K331M	125
	470	18	16.5	K16	400	0.28	0.12	EEVTG1K471M	125

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Endurance : 125°C 1000 to 2000h

■ Standard Products

W.V. (V)	Cap (±20%) (μF)	Case Size Dia. (mm)	Case Size Length (mm)	Case Size Size code	Specification Ripple current (100kHz) (+125°C) (mA)	Specification ESR (100kHz) (+20°C) (Ω)	Specification tanδ (120Hz) (+20°C)	Part No.	Min. Packaging Q'ty Taping (pcs)
100	10	8	10.2	F	70	1.3	0.1	EEVTG2A100P	500
	22	(8)	(10.2)	(F)	(70)	(1.3)	0.1	EEVTG2A220UP	500
		10	10.2	G	90	1.0	0.1	EEVTG2A220P	500
	33	10	10.2	G	90	1.0	0.1	EEVTG2A330P	500
	47	12.5	13.5	H13	250	0.42	0.1	EEVTG2A470Q	200
	100	16	16.5	J16	350	0.3	0.1	EEVTG2A101M	125
	220	18	16.5	K16	400	0.28	0.1	EEVTG2A221M	125
	330	18	16.5	K16	400	0.28	0.1	EEVTG2A331M	125

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