

**SUBJECT: Large Can TS-NH Series Snap-In Aluminum Electrolytic Capacitor
will be discontinued**

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LAST TIME BUY: December 31, 2002

LAST TIME SHIPMENT: March 31, 2003

**SUGGESTED REPLACEMENT: TS-HA Series Snap-In Aluminum Electrolytic
Capacitor**

The TS-HA aluminum electrolytic capacitor is the recommended replacement for TS-NH series large can Snap-In series. Generally the TS-HA series is not an exact drop in replacement for the TS-NH series. The major differences are:

1. TS-NH has endurance of 2000 hrs. at 105C. TS-HA has endurance of 3000 hrs. at 105C.
2. TS-HA has smaller can diameter and/or height for a given capacitance voltage value compared to TS-NH series.

Please see the attached part number cross-reference for recommended basic TS-HA part number based on capacitance and voltage.

Please see catalog or the ECG internet (http://www.panasonic.com/industrial/components/pdf/pic_ts-ha_dne.pdf) for the available can sizes and exact part number information for the TS-HA series.

Please notify your customers of the change.

TS-NH Discontinued Part Number And Recommended Cross

(Last shipment Mar/End/2003)

TS-NH Series			→	TS-HA Series
Part No.	W.V. (V)	Cap. (uF)		Part No.*
ECE-S1CG332D	16	3300		ECO-S1CA332__
ECE-S1CG472E	16	4700		ECO-S1CA472__
ECE-S1CG472J	16	4700		ECO-S1CA472__
ECE-S1CG682G	16	6800		ECO-S1CA682__
ECE-S1CG682K	16	6800		ECO-S1CA682__
ECE-S1CG682Q	16	6800		ECO-S1CA682__
ECE-S1CG103H	16	10000		ECO-S1CA103__
ECE-S1CG103M	16	10000		ECO-S1CA103__
ECE-S1CG103R	16	10000		ECO-S1CA103__
ECE-S1CG153N	16	15000		ECO-S1CA153__
ECE-S1CG153T	16	15000		ECO-S1CA153__
ECE-S1CG153X	16	15000		ECO-S1CA153__
ECE-S1CG223U	16	22000		ECO-S1CA223__
ECE-S1CG223Y	16	22000		ECO-S1CA223__
ECE-S1CG333Z	16	33000		ECO-S1CA333__
ECE-S1EG222D	25	2200		ECO-S1EA222__
ECE-S1EG332E	25	3300		ECO-S1EA332__
ECE-S1EG332J	25	3300		ECO-S1EA332__
ECE-S1EG472G	25	4700		ECO-S1EA472__
ECE-S1EG472K	25	4700		ECO-S1EA472__
ECE-S1EG472Q	25	4700		ECO-S1EA472__
ECE-S1EG682H	25	6800		ECO-S1EA682__
ECE-S1EG682M	25	6800		ECO-S1EA682__
ECE-S1EG682R	25	6800		ECO-S1EA682__
ECE-S1EG103N	25	10000		ECO-S1EA103__
ECE-S1EG103T	25	10000		ECO-S1EA103__
ECE-S1EG103X	25	10000		ECO-S1EA103__
ECE-S1EG153U	25	15000		ECO-S1EA153__
ECE-S1EG153Y	25	15000		ECO-S1EA153__
ECE-S1EG223Z	25	22000		ECO-S1EA223__
ECE-S1VG152D	35	1500		ECO-S1VA152__
ECE-S1VG222E	35	2200		ECO-S1VA222__
ECE-S1VG222J	35	2200		ECO-S1VA222__
ECE-S1VG332G	35	3300		ECO-S1VA332__
ECE-S1VG332K	35	3300		ECO-S1VA332__
ECE-S1VG332Q	35	3300		ECO-S1VA332__
ECE-S1VG472H	35	4700		ECO-S1VA472__
ECE-S1VG472M	35	4700		ECO-S1VA472__
ECE-S1VG472R	35	4700		ECO-S1VA472__
ECE-S1VG682N	35	6800		ECO-S1VA682__
ECE-S1VG682T	35	6800		ECO-S1VA682__
ECE-S1VG682X	35	6800		ECO-S1VA682__
ECE-S1VG103U	35	10000		ECO-S1VA103__
ECE-S1VG103Y	35	10000		ECO-S1VA103__
ECE-S1VG153Z	35	15000		ECO-S1VA153__

*See Catalog for Available TS-HA Can Sizes

TS-NH Series			→	TS-HA Series
Part No.	W.V. (V)	Cap. (uF)		Part No.*
ECE-S1HG102D	50	1000		ECO-S1HA102__
ECE-S1HG152E	50	1500		ECO-S1HA152__
ECE-S1HG152J	50	1500		ECO-S1HA152__
ECE-S1HG222G	50	2200		ECO-S1HA222__
ECE-S1HG222K	50	2200		ECO-S1HA222__
ECE-S1HG222Q	50	2200		ECO-S1HA222__
ECE-S1HG332H	50	3300		ECO-S1HA332__
ECE-S1HG332M	50	3300		ECO-S1HA332__
ECE-S1HG332R	50	3300		ECO-S1HA332__
ECE-S1HG472N	50	4700		ECO-S1HA472__
ECE-S1HG472T	50	4700		ECO-S1HA472__
ECE-S1HG472X	50	4700		ECO-S1HA472__
ECE-S1HG682U	50	6800		ECO-S1HA682__
ECE-S1HG682Y	50	6800		ECO-S1HA682__
ECE-S1HG103Z	50	10000		ECO-S1HA103__
ECE-S1JG681D	63	680		ECO-S1JA681__
ECE-S1JG102E	63	1000		ECO-S1JA102__
ECE-S1JG102J	63	1000		ECO-S1JA102__
ECE-S1JG152G	63	1500		ECO-S1JA152__
ECE-S1JG152K	63	1500		ECO-S1JA152__
ECE-S1JG152Q	63	1500		ECO-S1JA152__
ECE-S1JG222H	63	2200		ECO-S1JA222__
ECE-S1JG222M	63	2200		ECO-S1JA222__
ECE-S1JG222R	63	2200		ECO-S1JA222__
ECE-S1JG332N	63	3300		ECO-S1JA332__
ECE-S1JG332T	63	3300		ECO-S1JA332__
ECE-S1JG332X	63	3300		ECO-S1JA332__
ECE-S1JG472U	63	4700		ECO-S1JA472__
ECE-S1JG472Y	63	4700		ECO-S1JA472__
ECE-S1JG682Z	63	6800		ECO-S1JA682__
ECE-S1KG471D	80	470		ECO-S1KA471__
ECE-S1KG681E	80	680		ECO-S1KA681__
ECE-S1KG681J	80	680		ECO-S1KA681__
ECE-S1KG102G	80	1000		ECO-S1KA102__
ECE-S1KG102K	80	1000		ECO-S1KA102__
ECE-S1KG102Q	80	1000		ECO-S1KA102__
ECE-S1KG152H	80	1500		ECO-S1KA152__
ECE-S1KG152M	80	1500		ECO-S1KA152__
ECE-S1KG152R	80	1500		ECO-S1KA152__
ECE-S1KG222N	80	2200		ECO-S1KA222__
ECE-S1KG222T	80	2200		ECO-S1KA222__
ECE-S1KG332U	80	3300		ECO-S1KA332__
ECE-S1KG332Y	80	3300		ECO-S1KA332__
ECE-S1KG472Z	80	4700		ECO-S1KA472__

TS-NH Discontinued Part Number And Recommended Cross

(Last shipment Mar/End/2003)

TS-NH Series			→	TS-HA Series
Part No.	W.V. (V)	Cap. (uF)		Part No.*
ECE-S2AG331D	100	330		ECO-S2AA331__
ECE-S2AG471E	100	470		ECO-S2AA471__
ECE-S2AG471J	100	470		ECO-S2AA471__
ECE-S2AG681G	100	680		ECO-S2AA681__
ECE-S2AG681K	100	680		ECO-S2AA681__
ECE-S2AG681Q	100	680		ECO-S2AA681__
ECE-S2AG102H	100	1000		ECO-S2AA102__
ECE-S2AG102M	100	1000		ECO-S2AA102__
ECE-S2AG102R	100	1000		ECO-S2AA102__
ECE-S2AG152N	100	1500		ECO-S2AA152__
ECE-S2AG152T	100	1500		ECO-S2AA152__
ECE-S2AG152X	100	1500		ECO-S2AA152__
ECE-S2AG222U	100	2200		ECO-S2AA222__
ECE-S2AG222Y	100	2200		ECO-S2AA222__
ECE-S2AG332Z	100	3300		ECO-S2AA332__
ECE-S2CG151D	160	150		ECO-S2CA151__
ECE-S2CG221E	160	220		ECO-S2CA221__
ECE-S2CG221J	160	220		ECO-S2CA221__
ECE-S2CG331G	160	330		ECO-S2CA331__
ECE-S2CG331K	160	330		ECO-S2CA331__
ECE-S2CG331Q	160	330		ECO-S2CA331__
ECE-S2CG471H	160	470		ECO-S2CA471__
ECE-S2CG471M	160	470		ECO-S2CA471__
ECE-S2CG471R	160	470		ECO-S2CA471__
ECE-S2CG681N	160	680		ECO-S2CA681__
ECE-S2CG681T	160	680		ECO-S2CA681__
ECE-S2CG681X	160	680		ECO-S2CA681__
ECE-S2CG821U	160	820		ECO-S2CA821__
ECE-S2CG821Y	160	820		ECO-S2CA821__
ECE-S2DG101D	200	100		ECO-S2DA101__
ECE-S2DG151E	200	150		ECO-S2DA151__
ECE-S2DG151J	200	150		ECO-S2DA151__
ECE-S2DG181G	200	180		ECO-S2DA181__
ECE-S2DG181K	200	180		ECO-S2DA181__
ECE-S2DG181Q	200	180		ECO-S2DA181__
ECE-S2DG221G	200	220		ECO-S2DA221__
ECE-S2DG221K	200	220		ECO-S2DA221__
ECE-S2DG221Q	200	220		ECO-S2DA221__
ECE-S2DG271H	200	270		ECO-S2DA271__
ECE-S2DG271M	200	270		ECO-S2DA271__
ECE-S2DG271R	200	270		ECO-S2DA271__
ECE-S2DG331H	200	330		ECO-S2DA331__
ECE-S2DG331M	200	330		ECO-S2DA331__
ECE-S2DG331R	200	330		ECO-S2DA331__
ECE-S2DG391N	200	390		ECO-S2DA391__
ECE-S2DG391T	200	390		ECO-S2DA391__

*See Catalog for Available TS-HA Can Sizes

TS-NH Series			→	TS-HA Series
Part No.	W.V. (V)	Cap. (uF)		Part No.*
ECE-S2DG391X	200	390		ECO-S2DA391__
ECE-S2DG471N	200	470		ECO-S2DA471__
ECE-S2DG471T	200	470		ECO-S2DA471__
ECE-S2DG471X	200	470		ECO-S2DA471__
ECE-S2DG561U	200	560		ECO-S2DA561__
ECE-S2DG561Y	200	560		ECO-S2DA561__
ECE-S2DG681U	200	680		ECO-S2DA681__
ECE-S2DG681Y	200	680		ECO-S2DA681__
ECE-S2DG821Z	200	820		ECO-S2DA821__
ECE-S2DG102Z	200	1000		ECO-S2DA102__
ECE-S2EG680D	250	68		ECO-S2EA680__
ECE-S2EG101E	250	100		ECO-S2EA101__
ECE-S2EG101J	250	100		ECO-S2EA101__
ECE-S2EG151G	250	150		ECO-S2EA151__
ECE-S2EG151K	250	150		ECO-S2EA151__
ECE-S2EG151Q	250	150		ECO-S2EA151__
ECE-S2EG181K	250	180		ECO-S2EA181__
ECE-S2EG221H	250	220		ECO-S2EA221__
ECE-S2EG221M	250	220		ECO-S2EA221__
ECE-S2EG221R	250	220		ECO-S2EA221__
ECE-S2EG271N	250	270		ECO-S2EA271__
ECE-S2EG271R	250	270		ECO-S2EA271__
ECE-S2EG331N	250	330		ECO-S2EA331__
ECE-S2EG331T	250	330		ECO-S2EA331__
ECE-S2EG331X	250	330		ECO-S2EA331__
ECE-S2EG391X	250	390		ECO-S2EA391__
ECE-S2EG471U	250	470		ECO-S2EA471__
ECE-S2EG471Y	250	470		ECO-S2EA471__
ECE-S2EG821Z	250	620		ECO-S2EA821__
ECE-S2EG681Z	250	680		ECO-S2EA681__
ECE-S2GG330D	400	33		ECO-S2GA330__
ECE-S2GG470E	400	47		ECO-S2GA470__
ECE-S2GG470J	400	47		ECO-S2GA470__
ECE-S2GG680G	400	68		ECO-S2GA680__
ECE-S2GG680K	400	68		ECO-S2GA680__
ECE-S2GG680Q	400	68		ECO-S2GA680__
ECE-S2GG101H	400	100		ECO-S2GA101__
ECE-S2GG101M	400	100		ECO-S2GA101__
ECE-S2GG101R	400	100		ECO-S2GA101__
ECE-S2GG151N	400	150		ECO-S2GA151__
ECE-S2GG151T	400	150		ECO-S2GA151__
ECE-S2GG151X	400	150		ECO-S2GA151__
ECE-S2GG221U	400	220		ECO-S2GA221__
ECE-S2GG221Y	400	220		ECO-S2GA221__
ECE-S2GG331Z	400	330		ECO-S2GA331__