05



①Series name ②Single output ③Output wattage ④Universal Input

(5) Output voltage

\*Avoid short circuit between +BC and -BC. It may cause the failure of inside components. \*To use TUHS, external components are required. Refer to the instruction manual for details.

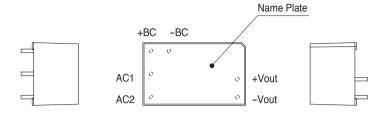
MODEL	TUHS3F05	TUHS3F12	TUHS3F24
MAX OUTPUT WATTAGE[W]	3.00	3.00	3.12
DC OUTPUT	5V 0.6A	12V 0.25A	24V 0.13A

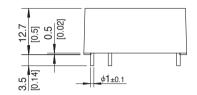
	MODEL		TUHS3F05	TUHS3F12	TUHS3F24		
	VOLTAGE[V]		AC85 - 264 1 ¢ DC120 - 370				
	CURRENT[A]	ACIN 100V	0.08typ (lo=100%)				
	CORNENT[A]	ACIN 200V	0.05typ (lo=100%)				
INPUT	FREQUENCY[Hz	z]	50/60 (47 - 63)				
INPUT	EFFICIENCY[%]	ACIN 100V	79typ	81typ	81typ		
	LIFICILING 1[/8]	ACIN 200V	78typ	79typ	79typ		
	INRUSH CURRE	NT	Limited by external components				
	LEAKAGE CURI	RENT[mA]	0.40/0.75 max (ACIN100V/240V , 60Hz, lo=100% , According to IEC60950-1)				
	VOLTAGE[V]		5	12	24		
	CURRENT[A]		0.6	0.25	0.13		
	LINE REGULATI	ON[mV]	20max	48max	96max		
	LOAD REGULAT	ΓΙΟΝ[mV]	40max	100max	150max		
	DIDDI E[m//n n]	30 to 100% Load *1	120max	160max	200max		
OUTPUT	RIPPLE[mVp-p]	0 to 30% Load AC85V - 240V *1	400max	480max	580max		
OUIFUI	RIPPLE	30 to 100% Load *1	160max	200max	240max		
	NOISE[mVp-p]	0 to 30% Load AC85V - 240V *1	480max	560max	660max		
	TEMPERATURE	0 to +85℃	100max	180max	360max		
	REGULATION[mV]	-40 to +85℃	150max	270max	480max		
	DRIFT[mV]	*2	20max	48max	96max		
	OUTPUT VOLTAGE	SETTING[V]	4.90 - 5.30	11.40 - 12.60	23.00 - 25.00		
PROTECTION CIRCUIT	OVERCURRENT PR	OTECTION	Works over 105% of rating and recover	er automatically			
AND OTHERS	OVERVOLTAGE PRO	TECTION[V]	5.50 - 8.00	13.20 - 19.20	26.40 - 38.40		
ISOLATION	INPUT-OUTPUT		AC3,000V 1minute, Cutoff current = 1	0mA, DC500V 50M $\Omega$ min (20±15 $^{\circ}$ C)			
	OPERATING TEMP., HUMID	AND ALTITUDE	-40 to +85℃, 20 - 95%RH (Non cond	ensing) (Refer to DERATING CURVE),	3,000m (10,000 feet) max		
ENVIRONMENT	STORAGE TEMP., HUMID.A	ND ALTITUDE	-40 to +100℃, 20 - 95%RH (Non con	densing), 9,000m (30,000 feet) max			
ENVIRONMENT	VIBRATION		10 - 55Hz, 49.0m/s² (5G), 3minutes p	eriod, 60minutes each along X, Y and 2	Z axis		
	IMPACT		196.1m/s² (20G), 11ms, once each along X, Y and Z axis				
SAFETY	AGENCY APPRO	OVALS	UL60950-1, C-UL (CSA60950-1), EN	60950-1			
AND NOISE	CONDUCTED N	OISE	Complies with FCC-B,VCCI-B,CISPR	-B,EN55022-B *3			
REGULATIONS	HARMONIC ATT	ENUATOR	Complies with IEC61000-3-2 (Class A	A) (Not built-in to active filter)			
OTHERS	CASE SIZE/WEI	GHT	28.7×12.7×17.5mm[1.13×0.50×0.	69 inches] (WXHXD) / 15g max			
OTTIETTO	COOLING METH	HOD	Convection / Forced air				

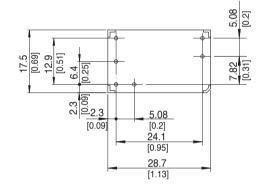
- Refer to instruction manual for measuring method of electric characteristics.
- Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C, with the input voltage held constant at the rated value.
- Do not ground secondly circuit, in case of a standard adapted. Measured with  $18\mu F$  capasitor as Cbc.

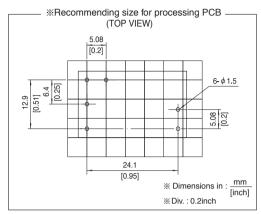
### TUHS3 | COSEL

### **External view**









- % Tolerance : ±0.5 [±0.02]
  % Weight : 15g max
- X Case material : PBT
- \* Pin material : Copper
- Plating treatment of pin : Lead free plating
   Dimensions in mm, [ ]=inches

□Class II





①Series name ②Single output ③Output wattage ④Universal Input

(5) Output voltage

\*Avoid short circuit between +BC and -BC. It may cause the failure of inside components. \*To use TUHS, external components are required. Refer to the instruction manual for details.

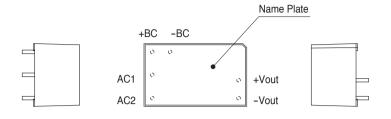
MODEL	TUHS5F05	TUHS5F12	TUHS5F24
MAX OUTPUT WATTAGE[W]	5.00	5.40	5.28
DC OUTPUT	5V 1A	12V 0.45A	24V 0.22A

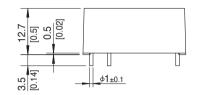
	MODEL		TUHS5F05	TUHS5F12	TUHS5F24		
	VOLTAGE[V]		AC85 - 264 1 ¢ DC120 - 370				
	CURRENT[A]	ACIN 100V	0.13typ (lo=100%)				
	CORRENT[A]	ACIN 200V	0.08yp (lo=100%)				
INPUT	FREQUENCY[Hz	z]	50/60 (47 - 63)				
INPUT	EFFICIENCY[%]		78typ	82typ	83typ		
	EFFICIENCT[%]	ACIN 200V	79typ	82typ	83typ		
	INRUSH CURRE	NT	Limited by external components				
	LEAKAGE CURI	RENT[mA]	0.40/0.75 max (ACIN100V/240V , 60Hz, lo=100% , According to IEC60950-1)				
	VOLTAGE[V]		5	12	24		
	CURRENT[A]		1	0.45	0.22		
	LINE REGULATI	ON[mV]	20max	48max	96max		
	LOAD REGULAT	TION[mV]	40max	100max	150max		
	DIDDI E[m//n n]	30 to 100% Load *1	120max	160max	200max		
OUTPUT	RIPPLE[mVp-p]	0 to 30% Load AC85V - 240V *1	400max	480max	580max		
001101	RIPPLE	30 to 100% Load *1	160max	200max	240max		
	NOISE[mVp-p]	0 to 30% Load AC85V - 240V *1	480max	560max	660max		
	TEMPERATURE	0 to +80°C	100max	180max	360max		
	REGULATION[mV]	-40 to +80°C	150max	270max	480max		
	DRIFT[mV]	*2	20max	48max	96max		
	OUTPUT VOLTAGE	SETTING[V]	4.90 - 5.30	11.40 - 12.60	23.00 - 25.00		
PROTECTION CIRCUIT	OVERCURRENT PR	OTECTION	Works over 105% of rating and recover	er automatically			
AND OTHERS	OVERVOLTAGE PRO	TECTION[V]	5.50 - 8.00	13.20 - 19.20	26.40 - 38.40		
ISOLATION	INPUT-OUTPUT		AC3,000V 1minute, Cutoff current = 1	0mA, DC500V 50M $\Omega$ min (20±15 $^{\circ}$ C)			
	OPERATING TEMP., HUMID	AND ALTITUDE	-40 to +85°C, 20 - 95%RH (Non cond	ensing) (Refer to DERATING CURVE),	3,000m (10,000 feet) max		
ENVIRONMENT	STORAGE TEMP., HUMID.A	ND ALTITUDE	-40 to +100℃, 20 - 95%RH (Non con	densing), 9,000m (30,000 feet) max			
LITTINON	VIBRATION		10 - 55Hz, 49.0m/s² (5G), 3minutes p	eriod, 60minutes each along X, Y and 2	Z axis		
	IMPACT		196.1m/s² (20G), 11ms, once each along X, Y and Z axis				
SAFETY	AGENCY APPRO	OVALS	UL60950-1, C-UL (CSA60950-1), EN	60950-1			
AND NOISE	CONDUCTED N	OISE	Complies with FCC-B,VCCI-B,CISPR	-B,EN55022-B *3			
REGULATIONS	HARMONIC ATT		Complies with IEC61000-3-2 (Class A	A) (Not built-in to active filter)			
OTHERS	CASE SIZE/WEI		28.7×12.7×17.5mm[1.13×0.50×0.	69 inches] (W×H×D) / 15g max			
OE.10	COOLING METH	IOD	Convection / Forced air				

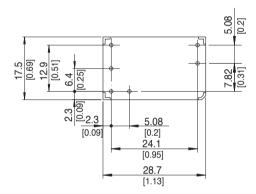
- Refer to instruction manual for measuring method of electric characteristics.
- Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C, with the input voltage held constant at the rated value.
- Do not ground secondly circuit, in case of a standard adapted. Measured with  $22\mu F$  capasitor as Cbc.

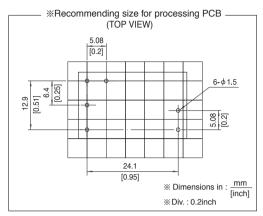
## TUHS5 | COSEL

### **External view**









- \* Tolerance : ±0.5 [±0.02]
- % Weight : 15g max
- Case material : PBT
- \* Pin material : Copper
- Plating treatment of pin : Lead free plating
  Dimensions in mm, [ ]=inches

## TUHS10

10 05

□Class II



- ①Series name ②Single output ③Output wattage ④Universal Input
- (5) Output voltage

TUHS

\*Avoid short circuit between +BC and -BC. It may cause the failure of inside components. \*To use TUHS, external components are required. Refer to the instruction manual for details.

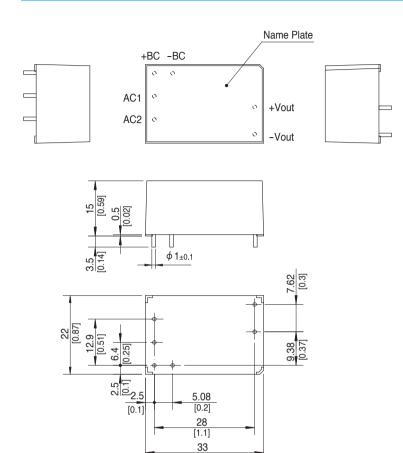
MODEL	TUHS10F05	TUHS10F12	TUHS10F24
MAX OUTPUT WATTAGE[W]	10.00	10.80	10.80
DC OUTPUT	5V 2A	12V 0.9A	24V 0.45A

	MODEL		TUHS10F05	TUHS10F12	TUHS10F24	
	VOLTAGE[V]		AC85 - 264 1 φ DC120 - 370			
	CURRENT[A]	ACIN 100V	0.25typ (lo=100%)			
	CURRENT[A]	ACIN 200V	0.14typ (lo=100%)			
NPUT	FREQUENCY[Hz	z]	50/60 (47 - 63)			
NPUI	EFFICIENCY[%]	ACIN 100V	81typ	85typ	86typ	
	EFFICIENCT[%]	ACIN 200V	82typ	85typ	87typ	
	INRUSH CURRE	NT	Limited by external components			
	LEAKAGE CURI	RENT[mA]	0.40/0.75 max (ACIN100V/240V, 60H	Hz, Io=100% , According to IEC60950-	1)	
	VOLTAGE[V]		5	12	24	
	CURRENT[A]		2	0.9	0.45	
	LINE REGULATI	ON[mV]	20max	48max	96max	
	LOAD REGULAT	TION[mV]	40max	100max	150max	
	RIPPLE[mVp-p]	30 to 100% Load *1	120max	160max	200max	
UTPUT	RIPPLE	0 to 30% Load AC85V - 240V *1	400max	480max	580max	
JUIPUI		30 to 100% Load *1	160max	200max	240max	
	NOISE[mVp-p]	0 to 30% Load AC85V - 240V *1	480max	560max	660max	
	TEMPERATURE	0 to +70°C	100max	180max	360max	
	REGULATION[mV]	-40 to +70°C	150max	270max	480max	
	DRIFT[mV]	*2	20max	48max	96max	
	OUTPUT VOLTAGE	SETTING[V]	4.90 - 5.30	11.40 - 12.60	23.00 - 25.00	
ROTECTION CIRCUIT	OVERCURRENT PR	OTECTION	Works over 105% of rating and recover	er automatically		
ND OTHERS	OVERVOLTAGE PRO	TECTION[V]	5.50 - 8.00	13.20 - 19.20	26.40 - 38.40	
SOLATION	INPUT-OUTPUT		AC3,000V 1minute, Cutoff current = 1	0mA, DC500V 50M $\Omega$ min (20±15 $^{\circ}$ C)		
	OPERATING TEMP., HUMID	AND ALTITUDE	-40 to +85℃, 20 - 95%RH (Non cond	ensing) (Refer to DERATING CURVE),	3,000m (10,000 feet) max	
NVIRONMENT	STORAGE TEMP., HUMID.A	ND ALTITUDE	-40 to +100℃, 20 - 95%RH (Non con	densing), 9,000m (30,000 feet) max		
MANICAMENT	VIBRATION		10 - 55Hz, 49.0m/s² (5G), 3minutes p	eriod, 60minutes each along X, Y and 2	Z axis	
	IMPACT		196.1m/s² (20G), 11ms, once each along X, Y and Z axis			
AFETY	AGENCY APPRO	OVALS	UL60950-1, C-UL (CSA60950-1), EN	60950-1		
ND NOISE	CONDUCTED N	OISE	Complies with FCC-B,VCCI-B,CISPR	-B,EN55022-B *3		
EGULATIONS	HARMONIC ATT	ENUATOR	Complies with IEC61000-3-2 (Class A	A) (Not built-in to active filter)		
OTHERS	CASE SIZE/WEI		33.0×15.0×22.0mm[1.3×0.59×0.8	6 inches] (W×H×D) / 25g max		
,	COOLING METH	HOD	Convection / Forced air			

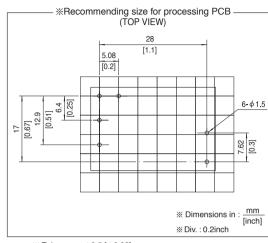
- Refer to instruction manual for measuring method of electric characteristics.
- Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C, with the input voltage held constant at the rated value.
- Do not ground secondly circuit, in case of a standard adapted. Measured with  $47\mu \mathrm{F}$  capasitor as Cbc.

## TUHS10 | COSEL

### **External view**



[1.3]

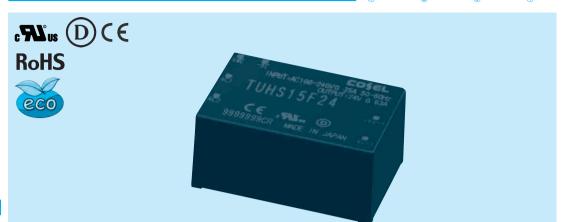


- \*\* Tolerance : ±0.5 [±0.02]
- Weight: 25g max
- Case material : PBT Pin material : Copper
- $\ensuremath{\mathbb{X}}$  Plating treatment of pin : Lead free plating
- ※ Dimensions in mm, [ ]=inches

### TUHS15

15 12

□Class II



①Series name ②Single output ③Output wattage ④Universal Input

(5) Output voltage

\*Avoid short circuit between +BC and -BC. It may cause the failure of inside components. \*To use TUHS, external components are required. Refer to the instruction manual for details.

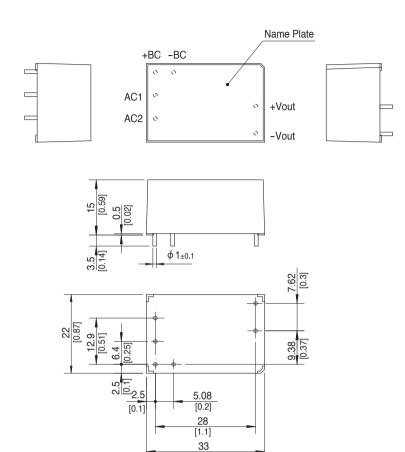
MODEL	TUHS15F12	TUHS15F24
MAX OUTPUT WATTAGE[W]	15.00	15.12
DC OUTPUT	12V 1.25A	24V 0.63A

NOLTAGE[V]			
ACIN 200V   0.18typ (lo=100%)			
INPUT			
ACIN 100V   85typ   86typ   87typ	0.18typ (lo=100%)		
ACIN 100V   85typ   86typ   87typ   87typ			
NRUSH CURRENT   Limited by external components			
LEAKAGE CURRENT[mA]   0.40/0.75 max (ACIN100V/240V , 60Hz, lo=100% , According to IEC60950-1)			
VOLTAGE[V]   12   24			
CURRENT[A]   1.25   0.63     LINE REGULATION[mV]   48max   96max     LOAD REGULATION[mV]   100max   150max     RIPPLE[mVp-p]     0.001   0.0			
LINE REGULATION[mV]			
LOAD REGULATION[mV]   100max   150max			
RIPPLE[mVp-p]   30 to 10% Load *1 160 max   200 max   200 max   480 max   580 max   200 max   20			
RIPPLE[mVp-p]			
NOISE[mVp-p] 010 30% Load AC85V - 240V *1 560 max 660 max			
TEMPERATURE         0 to +50°C         180max         360max			
<b>DRIFT[mV]</b> *2 48max 96max			
<b>OUTPUT VOLTAGE SETTING[V]</b> 11.40 - 12.60 23.00 - 25.00			
PROTECTION CIRCUIT OVERCURRENT PROTECTION Works over 105% of rating and recover automatically			
AND OTHERS <b>OVERVOLTAGE PROTECTION[V]</b> 13.20 - 19.20 26.40 - 38.40			
ISOLATION INPUT-OUTPUT AC3,000V 1minute, Cutoff current = 10mA, DC500V 50M $\Omega$ min (20±15 $^{\circ}$ C)			
OPERATING TEMP, HUMID.AND ALTITUDE -40 to +85°C, 20 - 95%RH (Non condensing) (Refer to DERATING CURVE), 3,000m (10,000 feet)	max		
ENVIRONMENT STORAGETEMP, HUMID.AND ALTITUDE -40 to +100°C, 20 - 95%RH (Non condensing), 9,000m (30,000 feet) max			
VIBRATION 10 - 55Hz, 49.0m/s² (5G), 3minutes period, 60minutes each along X, Y and Z axis			
IMPACT 196.1m/s² (20G), 11ms, once each along X, Y and Z axis	196.1m/s² (20G), 11ms, once each along X, Y and Z axis		
SAFETY AGENCY APPROVALS UL60950-1, C-UL (CSA60950-1), EN60950-1			
AND NOISE CONDUCTED NOISE Complies with FCC-B,VCCI-B,CISPR-B,EN55022-B *3			
REGULATIONS HARMONIC ATTENUATOR Complies with IEC61000-3-2 (Class A) (Not built-in to active filter)			
OTHERS   CASE SIZE/WEIGHT   33.0 × 15.0 × 22.0 mm[1.3 × 0.59 × 0.86 inches] (W × H × D) / 25g max			
COOLING METHOD Convection / Forced air			

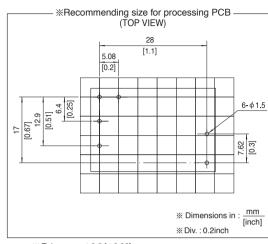
- Refer to instruction manual for measuring method of electric characteristics.
- Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C, with the input voltage held constant at the rated value.
- Do not ground secondly circuit, in case of a standard adapted. Measured with  $68\mu F$  capasitor as Cbc.

# TUHS15 | COSEL

### **External view**



[1.3]



- \*\* Tolerance : ±0.5 [±0.02]
- \* Weight : 25g max
- Case material : PBT Pin material : Copper
- \* Plating treatment of pin : Lead free plating
- \* Dimensions in mm, [ ]=inches

Ordering information

25 05



①Series name ②Single output ③Output wattage ④Universal Input

(5) Output voltage

\*Avoid short circuit between +BC and -BC. It may cause the failure of inside components. \*To use TUHS, external components are required. Refer to the instruction manual for details.

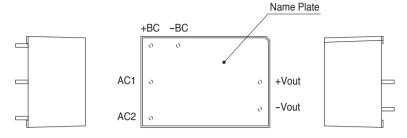
MODEL	TUHS25F05	TUHS25F12	TUHS25F24
MAX OUTPUT WATTAGE[W]	25.00	25.20	26.40
DC OUTPUT	5V 5A	12V 2.1A	24V 1.1A

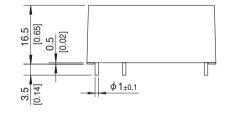
INPUT FR	OLTAGE[V] URRENT[A] REQUENCY[Hz FFICIENCY[%]	ACIN 100V ACIN 200V	AC85 - 264 1					
INPUT FR INI LE	REQUENCY[Hz	ACIN 200V	7. ( /					
INPUT FR INI LE	REQUENCY[Hz		0.35typ (lo=100%)		0.55typ (lo=100%)			
INPUT EF INI		:]		0.35typ (lo=100%)				
EF INI LE	FFICIENCY[%]		50/60 (47 - 63)	63)				
INI LE	FFICIENCT[70]	ACIN 100V	87typ	88typ	89typ			
LE		ACIN 200V	87typ	88typ	90typ			
	IRUSH CURRE	NT	Limited by external components					
VO	EAKAGE CURF	RENT[mA]	0.40/0.75 max (ACIN100V/240V , 60Hz, lo=100% , According to IEC60950-1)					
	OLTAGE[V]		5	12	24			
CU	URRENT[A]		5	2.1	1.1			
LIN	INE REGULATION	ON[mV]	20max	48max	96max			
LO	OAD REGULAT	ION[mV]	40max	100max	150max			
Bu	IDDI Elm\/n =1	30 to 100% Load *1	120max	160max	200max			
OUTPUT	IPPLE[mVp-p]	0 to 30% Load AC85V - 240V *1	400max	480max	580max			
	IFFEE	30 to 100% Load *1	160max	200max	240max			
NO	OISE[mVp-p]	0 to 30% Load AC85V - 240V *1	480max	560max	660max			
TE	EMPERATURE	0 to +50°C	100max	180max	360max			
RE	EGULATION[mV]	-40 to +50°C	150max	270max	480max			
DF	RIFT[mV]	*2	20max	48max	96max			
OU	UTPUT VOLTAGE	SETTING[V]	4.90 - 5.30	11.40 - 12.60	23.00 - 25.00			
PROTECTION CIRCUIT OV	VERCURRENT PRO	OTECTION	Works over 105% of rating and recover	er automatically				
AND OTHERS OV	VERVOLTAGE PRO	TECTION[V]	5.50 - 8.00	13.20 - 19.20	26.40 - 38.40			
ISOLATION INI	IPUT-OUTPUT		AC3,000V 1minute, Cutoff current = 1	0mA, DC500V 50M $\Omega$ min (20±15 $^{\circ}$ C)				
OPE	PERATING TEMP., HUMID.	AND ALTITUDE	-40 to +85°C, 20 - 95%RH (Non cond	ensing) (Refer to DERATING CURVE),	3,000m (10,000 feet) max			
ENVIRONMENT STO	ORAGE TEMP., HUMID. AN	ND ALTITUDE	-40 to +100℃, 20 - 95%RH (Non con	densing), 9,000m (30,000 feet) max				
VIE	IBRATION		10 - 55Hz, 49.0m/s² (5G), 3minutes p	eriod, 60minutes each along X, Y and 2	Z axis			
IM	MPACT		196.1m/s² (20G), 11ms, once each along X, Y and Z axis					
SAFETY AG	GENCY APPRO	OVALS	UL60950-1, C-UL (CSA60950-1), EN	60950-1				
	ONDUCTED NO	DISE	Complies with FCC-B,VCCI-B,CISPR	-B,EN55022-B *3				
REGULATIONS	ARMONIC ATT	ENUATOR	Complies with IEC61000-3-2 (Class A	A) (Not built-in to active filter)				
OTHERS CA	ASE SIZE/WEI	GHT	36.0×16.5×25.4mm[1.42×0.65×1.	0 inches] (W×H×D) / 40g max				
CC	OOLING METH	OD	Convection / Forced air					

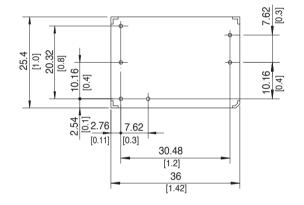
- Refer to instruction manual for measuring method of electric characteristics.
- Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C, with the input voltage held constant at the rated value.
- Do not ground secondly circuit, in case of a standard adapted.
- Measured with 120µF capasitor as Cbc.

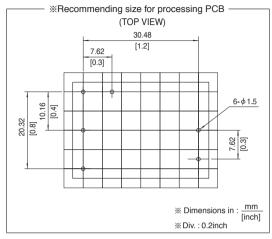


### **External view**









\*\* Tolerance : ±0.5 [±0.02]
 \*\* Weight : 40g max
 \*\* Case material : PBT
 \*\* Pin material : Copper
 \*\* Plating treatment of pin : Lead free plating
 \*\* Dimensions in mm, [ ]=inches