



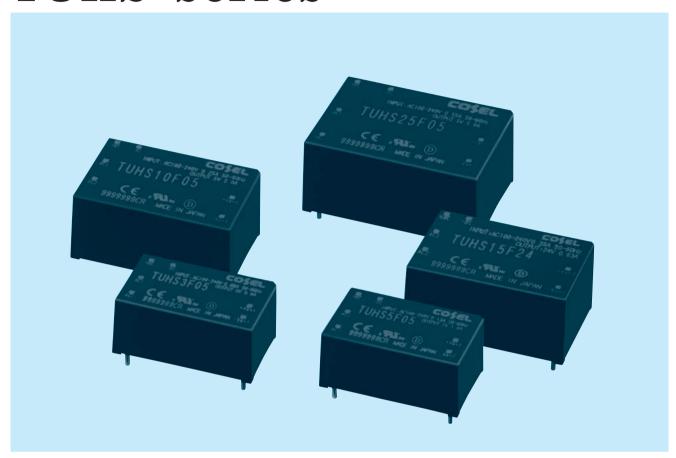








TUHS-series



Feature

P.C.board mount AC-DC Converter

Design flexibility for Hold-Up time and expected life

Built-in overcurrent and overvoltage protection circuits High efficiency by synchronous rectification technology (TUHS25)

Not built-in aluminum and tantalum electrolytic capacitor

CE marking

Low voltage directive RoHS Directive

Safety Approval

UL60950-1, C-UL, EN60950-1

5-year warranty

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	TUHS3F15	TUHS3F24
MAX OUTPUT WATTAGE[W]	3.00	3.00	3.00	3.12
DC OUTPUT	5V 0.6A	12V 0.25A	15V 0.2A	24V 0.13A

SPECIFICATIONS

	MODEL		TUHS3F05	TUHS3F12	TUHS3F15	TUHS3F24			
	VOLTAGE[V]		AC85 - 264 1 φ DC120 - 3	70					
	CURRENT[A]	ACIN 100V	0.08typ (lo=100%)						
INPUT E I OUTPUT F OUTPUT F OUTPUT F N I C C PROTECTION CIRCUIT AND OTHERS C S ENVIRONMENT V I	CORNENT[A]	ACIN 200V	0.05typ (lo=100%)						
	FREQUENCY[Hz	z]	50/60 (47 - 63)						
	EFFICIENCY[9/]	ACIN 100V	79typ	81typ	81typ	81typ			
	EFFICIENCT[%]	ACIN 200V	78typ	79typ	79typ	79typ			
	INRUSH CURRENT		Limited by external compor	nents					
	VOLTAGE[V]		5	12	15	24			
	CURRENT[A]		0.6	0.25	0.2	0.13			
	LINE REGULATI	ON[mV]	20max	48max	60max	96max			
ĺ	LOAD REGULAT	TION[mV]	40max	100max	120max	150max			
	DIDDI E(m)/:: ::1	30 to 100% Load *1	120max	160max	160max	200max			
	RIPPLE[mvp-p]	0 to 30% Load AC85V - 240V *1	400max	480max	480max	580max			
וטפוטנ	RIPPLE		200max	240max					
	NOISE[mVp-p]	0 to 30% Load AC85V - 240V *1	480max	560max	560max	660max			
	TEMPERATURE	0 to +85℃	100max	180max	240max	360max			
	REGULATION[mV]	-40 to +85℃	150max	270max	360max	480max			
RE	DRIFT[mV]	*2	20max	48max	60max	96max			
	OUTPUT VOLTAGE	SETTING[V]	4.90 - 5.30	11.40 - 12.60	14.25 - 15.75	23.00 - 25.00			
ROTECTION CIRCUIT	OVERCURRENT PRO	OTECTION	Works over 105% of rating	and recover automatically		,			
ND OTHERS	OVERVOLTAGE PRO	TECTION[V]	5.50 - 8.00	13.20 - 19.20	16.50 - 24.00	26.40 - 38.40			
SOLATION	INPUT-OUTPUT		AC3,000V 1minute, Cutoff	current = 10mA, DC500V 50	MΩ min (20±15℃)				
	OPERATING TEMP., HUMID.	AND ALTITUDE	-40 to +85°C, 20 - 95%RH ((Non condensing) (Refer to	"Derating"), 3,000m (10,	000 feet) max			
NVIRONMENT	STORAGE TEMP., HUMID. AI	ND ALTITUDE	-40 to +100°C, 20 - 95%RH	(Non condensing), 9,000m	(30,000 feet) max				
INVINONINIEN I	VIBRATION		10 - 55Hz, 49.0m/s ² (5G), 3	minutes period, 60minutes	each along X, Y and Z a	xis			
	IMPACT		196.1m/s² (20G), 11ms, one	ce each along X, Y and Z ax	ris				
AFETY	AGENCY APPRO	OVALS	UL60950-1, C-UL (CSA609	950-1), EN60950-1					
ND NOISE	CONDUCTED NO	OISE	Complies with FCC-B,VCC	I-B,CISPR-B,EN55022-B *3					
EGULATIONS	EFFICIENCY[%] INRUSH CURREN VOLTAGE[V] CURRENT[A] LINE REGULATIO LOAD REGULATIO RIPPLE[mVp-p] TEMPERATURE REGULATION[mV] DRIFT[mV] OUTPUT VOLTAGE SO OVERVOLTAGE PROTO OVERCURRENT PRO OVERVOLTAGE PROTO TION INPUT-OUTPUT OPERATING TEMP, HUMID.AN VIBRATION IMPACT AGENCY APPRO TIONS CASE SIZE/WEIG	ENUATOR	Complies with IEC61000-3-	-2 (Class A) (Not built-in to a	active filter)				
THERS	CURRENT[A] LINE REGULATION[mV] LOAD REGULATION[mV] RIPPLE[mVp-p] 30 to 100% Load 40,683V - 240V 40,683V - 2	28.7×12.7×17.5mm[1.13	×0.50×0.69 inches] (W×F	IXD) / 15g max					
/IIIENS	COOLING METH	IOD	Convection / Forced air						

Refer to instruction manual for measuring method of electric characteristics.

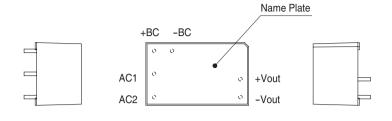
Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C, with the input voltage held constant at the rated value.

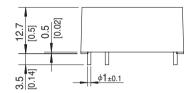
Do not ground secondly circuit, in case of a standard adapted. Measured with $18\mu F$ capasitor as Cbc.

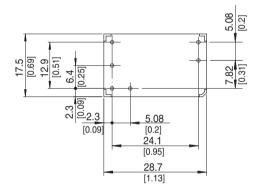
TUHS-2 June 26, 2020

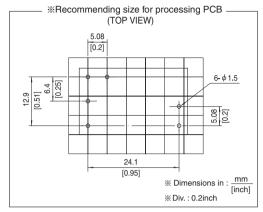












- % Tolerance : ±0.5 [±0.02] % Weight : 15g max
- X Case material : PBT
- * Pin material : Copper
- Plating treatment of pin : Lead free plating
 Dimensions in mm, []=inches

05

□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	TUHS5F15	TUHS5F24
MAX OUTPUT WATTAGE[W]	5.00	5.40	5.10	5.28
DC OUTPUT	5V 1A	12V 0.45A	15V 0.34A	24V 0.22A

SPECIFICATIONS

	MODEL		TUHS5F05	TUHS5F12	TUHS5F15	TUHS5F24		
INPUT E III V C L L L C PROTECTION CIRCUIT AND OTHERS C ISOLATION III ENVIRONMENT V	VOLTAGE[V]		AC85 - 264 1 φ DC120 - 370					
	OUDDENTIAL	ACIN 100V	0.13typ (lo=100%)					
	CURRENT[A] ACIN 200		0.08yp (lo=100%)					
	FREQUENCY[Hz	<u> </u>	50/60 (47 - 63)					
	EEEIOIENOVIO/1	ACIN 100V	78typ	82typ	82typ	83typ		
	EFFICIENCY[%]	ACIN 200V	79typ	82typ	82typ	83typ		
	INRUSH CURRENT		Limited by external compor	nents				
	VOLTAGE[V]		5	12	15	24		
	CURRENT[A]		1	0.45	0.34	0.22		
	LINE REGULATI	ON[mV]	20max	48max	60max	96max		
	LOAD REGULAT	ION[mV]	40max	100max	120max	150max		
	DIDDI Elm/m m1	30 to 100% Load *1	120max	160max	160max	200max		
NUTDUT	RIPPLE[mVp-p]	0 to 30% Load AC85V - 240V *1	400max	480max	480max	580max		
וטיווט	RIPPLE 30 to 100% Load *1 1	160max	200max	200max	240max			
		0 to 30% Load AC85V - 240V *1	480max	560max	560max	660max		
	TEMPERATURE	0 to +80°C	100max	180max	240max	360max		
	REGULATION[mV]	-40 to +80°C	150max	270max	360max	480max		
	DRIFT[mV]	*2	20max	48max	60max	96max		
	OUTPUT VOLTAGE	SETTING[V]	4.90 - 5.30	11.40 - 12.60	14.25 - 15.75	23.00 - 25.00		
ROTECTION CIRCUIT	OVERCURRENT PRO	OTECTION	Works over 105% of rating	and recover automatically	,	,		
ND OTHERS	OVERVOLTAGE PRO	TECTION[V]	5.50 - 8.00	13.20 - 19.20	16.50 - 24.00	26.40 - 38.40		
SOLATION	INPUT-OUTPUT		AC3,000V 1minute, Cutoff	current = 10mA, DC500V 5	i0MΩ min (20±15℃)			
	OPERATING TEMP., HUMID.	AND ALTITUDE	-40 to +85°C, 20 - 95%RH ((Non condensing) (Refer to	"Derating"), 3,000m (10	,000 feet) max		
NVIDONMENT	STORAGE TEMP., HUMID. A	ND ALTITUDE	-40 to +100°C, 20 - 95%RH (Non condensing), 9,000m (30,000 feet) max					
INVINONWENT	VIBRATION		10 - 55Hz, 49.0m/s² (5G), 3minutes period, 60minutes each along X, Y and Z axis					
	IMPACT		196.1m/s² (20G), 11ms, one	ce each along X, Y and Z a	xis			
AFETY	AGENCY APPRO	OVALS	UL60950-1, C-UL (CSA609	950-1), EN60950-1				
RIPPLE	CONDUCTED NO	DISE	Complies with FCC-B,VCC	I-B,CISPR-B,EN55022-B *	3			
	HARMONIC ATT	ENUATOR	Complies with IEC61000-3-	-2 (Class A) (Not built-in to	active filter)			
OTHERS	REGULATION[mV] -40 DRIFT[mV] OUTPUT VOLTAGE SET OVERCURRENT PROTEC OVERVOLTAGE PROTEC INPUT-OUTPUT OPERATING TEMP, HUMID.AND AL VIBRATION IMPACT AGENCY APPROVA CONDUCTED NOIS	GHT	28.7×12.7×17.5mm[1.13	X 0.50 X 0.69 inches] (W X I	H X D) / 15g max			
/IIIEN3	COOLING METH	IOD	Convection / Forced air					

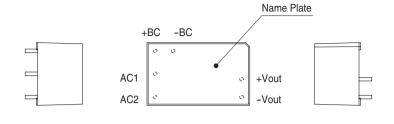
Refer to instruction manual for measuring method of electric characteristics.

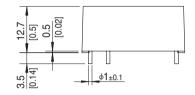
Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C, with the input voltage held constant at the rated value.

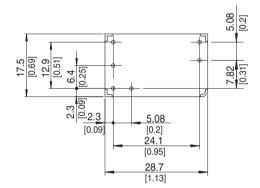
Do not ground secondly circuit, in case of a standard adapted. Measured with $22\mu F$ capasitor as Cbc.

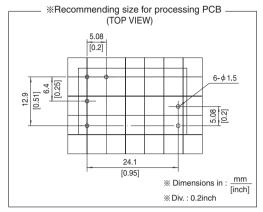












- % Tolerance : ±0.5 [±0.02]
- % Weight : 15g max
- * Case material : PBT
- * Pin material : Copper
- * Plating treatment of pin : Lead free plating
- ※ Dimensions in mm, []=inches

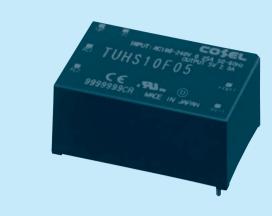
TUHS10

10 05



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

(5) Output voltage



□Class II

*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	TUHS10F15	TUHS10F24
MAX OUTPUT WATTAGE[W]	10.00	10.80	10.10	10.80
DC OUTPUT	5V 2A	12V 0.9A	15V 0.67A	24V 0.45A

SPECIFICATIONS

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	MODEL		TUHS10F05	TUHS10F12	TUHS10F15	TUHS10F24			
OUTPUT V C C INPUT F INPUT F R N T T	VOLTAGE[V]		AC85 - 264 1 ¢ DC120 - 370						
	CURRENTIAL	ACIN 100V	0.25typ (lo=100%)						
INPUT E III OUTPUT F OUTPUT F N C C L L C PROTECTION CIRCUIT AND OTHERS C SISOLATION III SAFETY A S C C III SAFETY A C C C C C C C C C C C C	CORNENT[A]	ACIN 200V	0.14typ (lo=100%)						
	FREQUENCY[Hz	z]	50/60 (47 - 63)						
	EEEICIENCVI9/1	ACIN 100V	81typ	85typ	85typ	86typ			
	EFFICIENCT[%]	ACIN 200V	82typ	85typ	85typ	87typ			
	INRUSH CURRE	NT	Limited by external compon	nents					
	VOLTAGE[V]		5	12	15	24			
	CURRENT[A]		2	0.9	0.67	0.45			
	LINE REGULATI	ON[mV]	20max	48max	60max	96max			
	LOAD REGULAT	TION[mV]	40max	100max	120max	150max			
	DIDDI E(m//1	30 to 100% Load *1	120max	160max	160max	200max			
OUTDUT	RIPPLE[mvp-p]	0 to 30% Load AC85V - 240V *1	400max	480max	480max	580max			
JUIPUI	RIPPLE	30 to 100% Load *1	160max	ax 200max 200max	240max				
	NOISE[mVp-p]	0 to 30% Load AC85V - 240V *1	480max	560max	560max	660max			
	TEMPERATURE 0 to +70°C 100max 180max	180max	240max	360max					
	REGULATION[mV]	-40 to +70℃	150max	270max	360max	480max			
REG	DRIFT[mV]	*2	20max	48max	60max	96max			
	OUTPUT VOLTAGE	SETTING[V]	4.90 - 5.30	11.40 - 12.60	14.25 - 15.75	23.00 - 25.00			
ROTECTION CIRCUIT	OVERCURRENT PR	OTECTION	Works over 105% of rating	and recover automatically	'	,			
AND OTHERS	OVERVOLTAGE PRO	TECTION[V]	5.50 - 8.00	13.20 - 19.20	16.50 - 24.00	26.40 - 38.40			
SOLATION	INPUT-OUTPUT		AC3,000V 1minute, Cutoff of	current = 10mA, DC500V 50	MΩ min (20±15°C)				
	OPERATING TEMP., HUMID	AND ALTITUDE	-40 to +85°C, 20 - 95%RH (Non condensing) (Refer to "Derating"), 3,000m (10,000 feet) max						
ENVIDONMENT	STORAGE TEMP., HUMID.A	ND ALTITUDE	-40 to +100°C, 20 - 95%RH (Non condensing), 9,000m (30,000 feet) max						
-1441UOI4IMIEI4I	VIBRATION		10 - 55Hz, 49.0m/s ² (5G), 3	minutes period, 60minutes	each along X, Y and Z a	axis			
	IMPACT		196.1m/s² (20G), 11ms, one	ce each along X, Y and Z ax	ris				
SAFETY	AGENCY APPRO	OVALS	UL60950-1, C-UL (CSA609	950-1), EN60950-1					
	CONDUCTED N	OISE	Complies with FCC-B,VCC	I-B,CISPR-B,EN55022-B *3					
REGULATIONS	CURRENT[A]	Complies with IEC61000-3-	IEC61000-3-2 (Class A) (Not built-in to active filter)						
OTHERS	RIPPLE[mVp-p] RIPPLE[mVp-p] RIPPLE[mVp-p] RIPPLE[mVp-p] RIPPLE[mVp-p] RIPPLE[mVp-p] RIPPLE[mVp-p] RIPPLE[mVp-p] RIPPLE[mVp-p] RIPPLE RIPPLE	33.0×15.0×22.0mm[1.3×	0.59 × 0.86 inches] (W × H	XD) / 25g max					
OTTLIS	COOLING METH	IOD	Convection / Forced air						

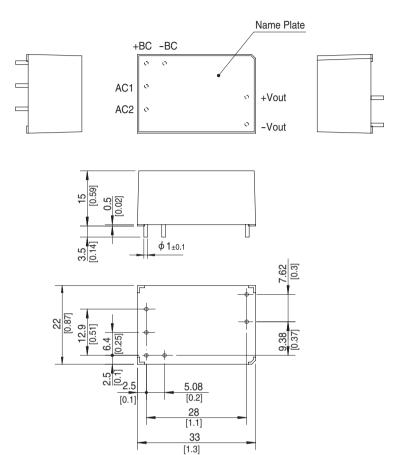
Refer to instruction manual for measuring method of electric characteristics.

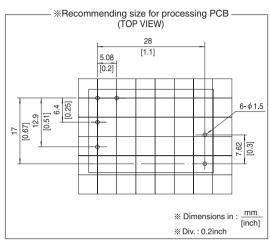
Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C, with the input voltage held constant at the rated value.

Do not ground secondly circuit, in case of a standard adapted. Measured with $47\mu F$ capasitor as Cbc.

TUHS-6 June 26, 2020







- ** 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

TUHS15

15 12



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	TUHS15F15	TUHS15F24	
MAX OUTPUT WATTAGE[W]	15.00	15.00	15.12	
DC OUTPUT	12V 1.25A	15V 1A	24V 0.63A	

SPECIFICATIONS

	MODEL		TUHS15F12	TUHS15F15	TUHS15F24		
	VOLTAGE[V]		AC85 - 264 1 φ DC120 - 370				
INPUT F II OUTPUT F N T F C C AND OTHERS ISOLATION II ENVIRONMENT V	CURRENT[A]	ACIN 100V	0.35typ (lo=100%)				
	CORRENT[A]	ACIN 200V	0.18typ (lo=100%)				
	FREQUENCY[Hz	z]	50/60 (47 - 63)				
	EFFICIENCY[9/]	ACIN 100V	85typ	85typ	86typ		
	EFFICIENCY[%]	ACIN 200V	85typ	85typ	87typ		
INPUT F III V C L L C D T T R PROTECTION CIRCUIT AND OTHERS C ISOLATION II	INRUSH CURRE	NT	Limited by external components				
	VOLTAGE[V]		12	15	24		
	CURRENT[A]		1.25	1	0.63		
	LINE REGULATI	ON[mV]	48max	60max	96max		
	LOAD REGULAT	TION[mV]	100max	120max	150max		
	DIDDI E(m//n m)	30 to 100% Load *1	160max	160max	200max		
LITBUT	RIPPLE[mvp-p]	0 to 30% Load AC85V - 240V *1	480max	480max	580max		
UIPUI	JT RIPPLE	30 to 100% Load *1	200max	200max	240max		
	NOISE[mVp-p]	0 to 30% Load AC85V - 240V *1	560max	560max	660max		
	TEMPERATURE		180max	240max	360max		
	REGULATION[mV]	-40 to +50℃	270max	360max	480max		
R	DRIFT[mV]	*2	48max	60max	96max		
	OUTPUT VOLTAGE	SETTING[V]	11.40 - 12.60	14.25 - 15.75	23.00 - 25.00		
ROTECTION CIRCUIT	OVERCURRENT PRO	OTECTION	Works over 105% of rating and recov	er automatically			
ND OTHERS	OVERVOLTAGE PRO	TECTION[V]	13.20 - 19.20	16.50 - 24.00	26.40 - 38.40		
OLATION	INPUT-OUTPUT		AC3,000V 1minute, Cutoff current = 1	0mA, DC500V 50M Ω min (20±15 $^{\circ}$ C)			
	OPERATING TEMP., HUMID.	AND ALTITUDE	-40 to +85°C, 20 - 95%RH (Non condensing) (Refer to "Derating"), 3,000m (10,000 feet) max				
NVIRONMENT	STORAGE TEMP., HUMID. A	ND ALTITUDE	-40 to +100°C, 20 - 95%RH (Non condensing), 9,000m (30,000 feet) max				
NVINONWENT	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				
AFETY	AGENCY APPRO	OVALS	UL60950-1, C-UL (CSA60950-1), EN	60950-1			
ND NOISE	CONDUCTED NO	OISE	Complies with FCC-B,VCCI-B,CISPR	-B,EN55022-B *3			
IPUT FREGUE INRUS VOLT. CURF LINE LOAD RIPPI UTPUT RIPPI NOISE TEMPE REGUL DRIFT OUTPI OTECTION CIRCUIT D OTHERS OVERV OLATION INPUT STORAGE VIBRA IMPAGE IMPAG	HARMONIC ATT	ENUATOR	Complies with IEC61000-3-2 (Class A	A) (Not built-in to active filter)			
THERS	EFFICIENCY[%] ACIN 100V 85typ 85typ 85typ 87typ						
THERS	COOLING METH	IOD	Convection / Forced air				

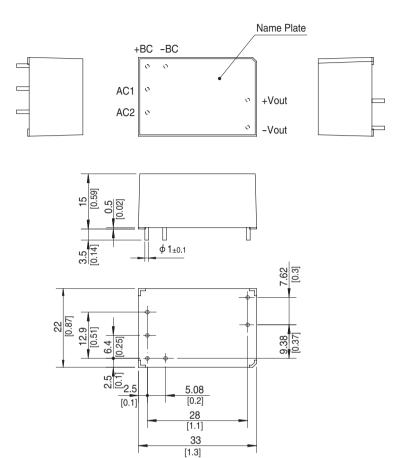
Refer to instruction manual for measuring method of electric characteristics.

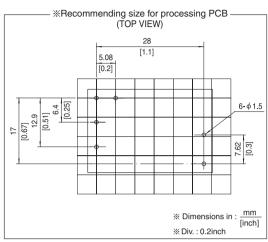
Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C, with the input voltage held constant at the rated value.

Do not ground secondly circuit, in case of a standard adapted. Measured with $68\mu F$ capasitor as Cbc.

TUHS-8 June 26, 2020







- ** 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

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	TUHS25F15	TUHS25F24
MAX OUTPUT WATTAGE[W]	25.00	25.20	25.50	26.40
DC OUTPUT	5V 5A	12V 2.1A	15V 1.7A	24V 1.1A

SPECIFICATIONS

	MODEL		TUHS25F05	TUHS25F12	TUHS25F15	TUHS25F24		
INPUT	VOLTAGE[V]		AC85 - 264 1 ¢ DC120 - 370					
	OUDDENTIAL	ACIN 100V	0.55typ (lo=100%)					
	CURRENT[A] ACIN 200V		0.35typ (lo=100%)					
INPUT	FREQUENCY[Hz	z]	50/60 (47 - 63)					
	EFFICIENCY[%]	ACIN 100V	87typ	88typ	88typ	89typ		
	ACIN 200V		87typ	88typ	88typ	90typ		
	INRUSH CURRE	NT	Limited by external compon	nents				
	VOLTAGE[V]		5	12	15	24		
	CURRENT[A]		5	2.1	1.7	1.1		
	LINE REGULATI	ON[mV]	20max	48max	60max	96max		
	LOAD REGULAT	TION[mV]	40max	100max	120max	150max		
	DIDDI E[mV= -1	30 to 100% Load *1	120max	160max	160max	200max		
OUTDUT	RIPPLE[mVp-p]	0 to 30% Load AC85V - 240V *1	400max	480max	480max	580max		
DUTPUT		160max	200max	200max	240max			
	NOISE[mVp-p]	0 to 30% Load AC85V - 240V *1	480max	560max	560max	660max		
	TEMPERATURE	0 to +50°C	100max	180max	240max	360max		
	REGULATION[mV]	-40 to +50℃	150max	270max	360max	480max		
	DRIFT[mV]	*2	20max	48max	60max	96max		
	OUTPUT VOLTAGE	SETTING[V]	4.90 - 5.30	11.40 - 12.60	14.25 - 15.75	23.00 - 25.00		
ROTECTION CIRCUIT	OVERCURRENT PR	OTECTION	Works over 105% of rating	and recover automatically				
AND OTHERS	OVERVOLTAGE PRO	TECTION[V]	5.50 - 8.00	13.20 - 19.20	16.50 - 24.00	26.40 - 38.40		
SOLATION	INPUT-OUTPUT		AC3,000V 1minute, Cutoff of	current = 10mA, DC500V 50	MΩ min (20±15℃)	,		
	OPERATING TEMP., HUMID	AND ALTITUDE	-40 to +85°C, 20 - 95%RH (Non condensing) (Refer to "Derating"), 3,000m (10,000 feet) max					
ENVIRONMENT	STORAGE TEMP., HUMID.A	ND ALTITUDE	-40 to +100°C, 20 - 95%RH (Non condensing), 9,000m (30,000 feet) max					
INVINONWENT	VIBRATION		10 - 55Hz, 49.0m/s² (5G), 3	minutes period, 60minutes e	each along X, Y and Z axis			
	IMPACT		196.1m/s² (20G), 11ms, once each along X, Y and Z axis					
SAFETY	AGENCY APPRO	OVALS	UL60950-1, C-UL (CSA609	950-1), EN60950-1				
AND NOISE	CONDUCTED N	OISE	Complies with FCC-B,VCCI	I-B,CISPR-B,EN55022-B *3				
REGULATIONS	HARMONIC ATT	ENUATOR	Complies with IEC61000-3-	-2 (Class A) (Not built-in to a	ctive filter)			
OTHERS	CASE SIZE/WEI	GHT	36.0×16.5×25.4mm[1.42	X 0.65 X 1.0 inches] (W X H X	(D) / 40g max			
JIIIERS	COOLING METH	IOD	Convection / Forced air					

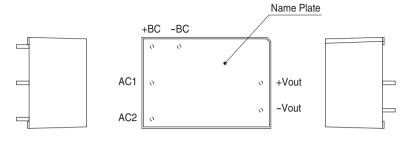
Refer to instruction manual for measuring method of electric characteristics.

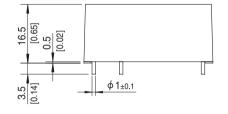
Drift is the change in DC output for an eight hour period after a half-hour warm-up at 25°C, with the input voltage held constant at the rated value.

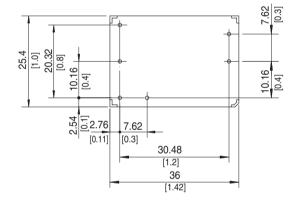
Do not ground secondly circuit, in case of a standard adapted. Measured with $120\mu F$ capasitor as Cbc.

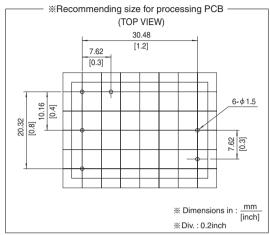
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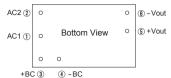




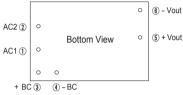
- ** Tolerance : ±0.5 [±0.02]
 ** Weight : 40g max
 ** Case material : PBT
 ** Pin material : Copper
 ** Plating treatment of pin : Lead free plating
 ** Dimensions in mm, []=inches

Pin Configuration

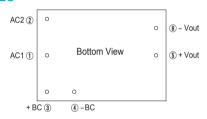
•TUHS3/TUHS5



•TUHS10/TUHS15



•TUHS25



No.	Pin Connection	Function
1	AC1	AC input
2	AC2	AG TIPUL
3	+BC	+BC output
4	-BC	-BC output
(5)	+VOUT	+DC output
6	-VOUT	-DC output

Implementation • Mounting Method

Mounting method

- ■The unit can be mounted in any direction. When two or more power supplies are used side by side, position them with proper intervals to allow enough air ventilation. The temperature around each power supply should not exceed the temperature range shown in derating curve.
- ■Avoid placing the AC input line pattern layout underneath the unit. It will increase the line conducted noise. Make sure to leave an ample distance between the line pattern layout and the unit. Also avoid placing the DC output line pattern underneath the unit because it may increase the output noise. Lay out the pattern away from the unit.
- Avoid placing the signal line pattern layout underneath the unit because the power supply might become unstable. Lay out the pattern away from the unit.

Stress to the pins

- ■Applying excessive stress to the input or output pins of the power module may damage internal connections. Avoid applying stress in excess of that shown in right figure.
- ■Input/output pin are soldered to the PCB internally. Do not pull or bend a lead powerfully.
- ■If it is expected that stress is applied to the input/output pin due to vibration or impact, reduce the stress to the pin by taking such measures as fixing the unit to the PCB by silicone rubber, etc.

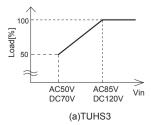
Less than 19.6N(2kgf) Less than 19.6N(2kgf) Less than 19.6N(2kgf)

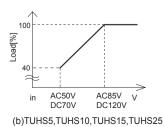
Soldering

- ■Flow soldering: 260°C for up to 15 seconds.
- ■Soldering iron (26W): 450°C for up to 5 seconds.

Derating

Derating curve for input voltage



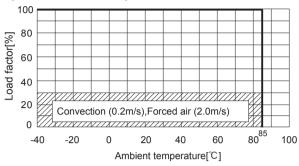


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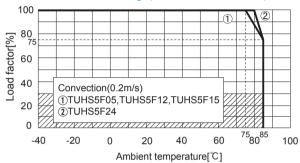


Derating

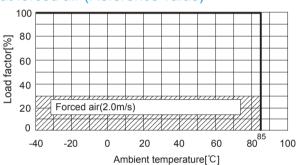
■TUHS3F Ambient temperature derating curve (Reference value)



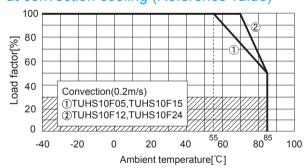
■TUHS5F Ambient temperature derating curve at convection cooling (Reference value)



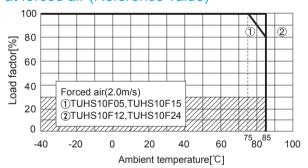
●TUHS5F Ambient temperature derating curve at forced air (Reference value)



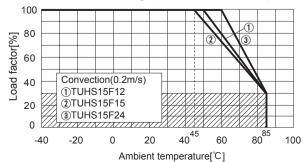
●TUHS10F Ambient temperature derating curve at convection cooling (Reference value)



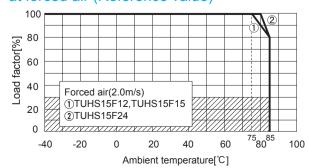
●TUHS10F Ambient temperature derating curve at forced air (Reference value)



●TUHS15F Ambient temperature derating curve at convection cooling (Reference value)



●TUHS15F Ambient temperature derating curve at forced air (Reference value)

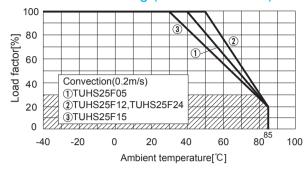


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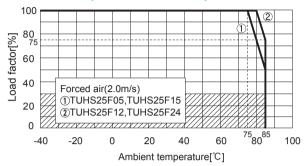
COSEL | TUHS-series

Derating

 TUHS25F Ambient temperature derating curve at convection cooling (Reference value)



●TUHS25F Ambient temperature derating curve at forced air (Reference value)



- ■Derating curve is shown below. Note: In the hatched area, the specification of Ripple, Ripple Noise is different from other area.
- ■Please have sufficient ventilation to keep the temperature of point A in Instruction Manual6. Please also make sure that the ambient temperature does not exceed 85C.

Instruction Manual

◆ It is neccessary to read the "Instruction Manual" and "Before using our product" before you use our product.

Instruction Manual https://en.cosel.co.jp/product/powersupply/TUHS/
Before using our product https://en.cosel.co.jp/technical/caution/index.html





Basic Characteristics Data

Madal Circuit mathed	Switching Input		Inrush current				Series/Parallel operation availability		
Model	Circuit method	frequency [kHz]	current [A]	protection circuit	Material	Single sided	Double sided	Series operation	Parallel operation
TUHS3F	Flyback converter	80-250 *3	*1	Resistor	glass fabric base,epoxy resin		Yes	Yes	*2
TUHS5F	Flyback converter	80-250 *3	*1	Resistor	glass fabric base,epoxy resin		Yes	Yes	* 2
TUHS10F	Flyback converter	80-250 *3	*1	Resistor	glass fabric base,epoxy resin		Yes	Yes	* 2
TUHS15F	Flyback converter	80-250 *3	*1	Resistor	glass fabric base,epoxy resin		Yes	Yes	*2
TUHS25F	Flyback converter	80-250 *3	*1	Thermistor	glass fabric base,epoxy resin		Yes	Yes	*2

- *1 Refer to Specification.
- *2 Refer to instruction manual.
- *3 The value changes depending on input and load.

TUHS-14 June 26, 2020

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Cosel:

<u>TUHS3F24</u> <u>TUHS5F24</u> <u>TUHS3F12</u> <u>TUHS25F24</u> <u>TUHS5F12</u> <u>TUHS10F24</u> <u>TUHS10F12</u> <u>TUHS10F05</u> <u>TUHS15F05</u> TUHS25F05 TUHS25F05 TUHS15F24 TUHS15F12