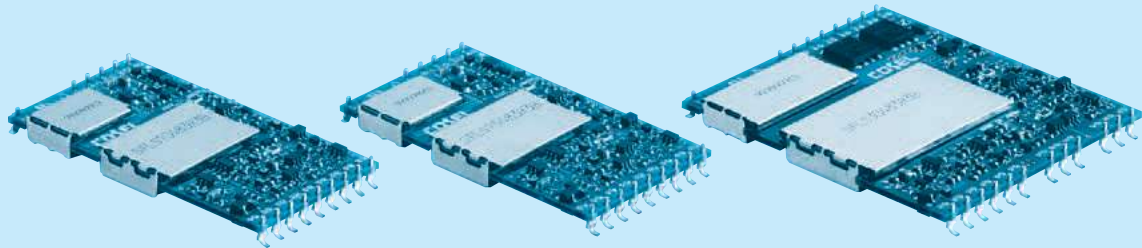




SFLS-series



■ Feature

- Low profile SMD mounting type
- High efficiency (synchronous rectifier circuit)
- Parallel operation is possible
- Built-in overcurrent, overvoltage and lowvoltage circuits
- Built-in remote ON/OFF, alarm
- Built-in Power ready / Sequence control

■ CE marking

- Low Voltage Directive
- RoHS Directive

■ UKCA marking

- Electrical Equipment Safety Regulations
- RoHS Regulations

■ Safety agency approvals

- UL60950-1, C-UL, EN62368-1

■ 5-year warranty

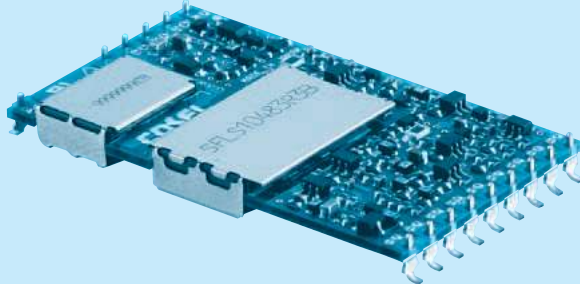
SFLS10

SFL S 10 48 3R3 B

① ② ③ ④ ⑤ ⑥



RoHS



- ① Series name
- ② Single output
- ③ Output wattage
- ④ Input voltage
48:DC36 - 76V
- ⑤ Output voltage
- ⑥ Mounting type
B :SMD

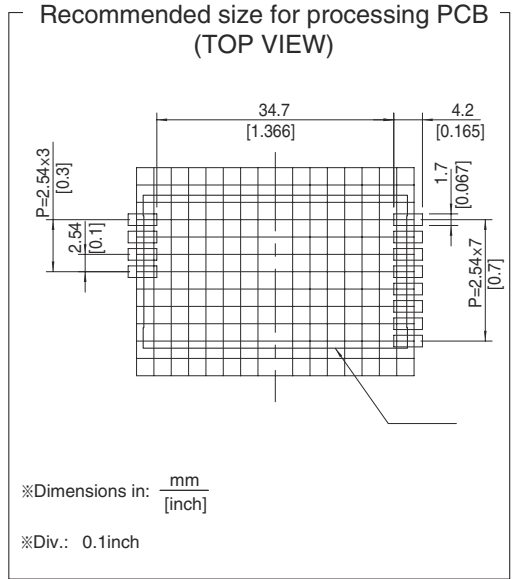
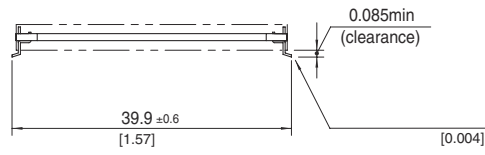
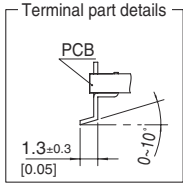
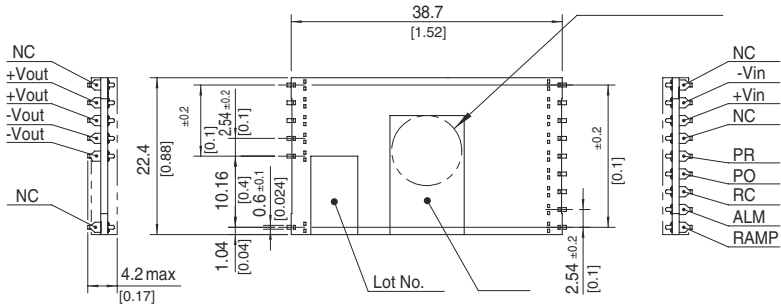
MODEL	SFLS10482R5	SFLS10483R3	SFLS104805
MAX OUTPUT WATTAGE[W]	7.5	9.9	10.0
DC OUTPUT	2.5V 3A	3.3V 3A	5V 2A

SPECIFICATIONS

	MODEL	SFLS10482R5	SFLS10483R3	SFLS104805
INPUT	VOLTAGE[V]	DC36 - 76		
	CURRENT[A]	*1 0.18typ	0.24typ	0.24typ
	EFFICIENCY[%]	*1 86typ	87typ	88typ
	START-UP VOLTAGE[V]	DC32 - 36		
	HYSTERESIS VOLTAGE[V]	DC2 min		
OUTPUT	VOLTAGE[V]	2.5	3.3	5
	CURRENT[A]	3	3	2
	VOLTAGE ACCURACY[%]	+5, -3		
	RIPPLE[mVp-p]	25max		
	RIPPLE NOISE[mVp-p]	50max		
	START-UP TIME[ms]	20 - 100max (DCIN 48V, Io=100%)		
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION	Works over 103% of rating		
	OVERVOLTAGE PROTECTION	Works at 115 - 150% of rating		
	LOWVOLTAGE PROTECTION	Works at 93% max of rating		
	REMOTE ON/OFF	Provided(RC open : ON, short between RC and +Vin : OFF)		
ISOLATION	INPUT-OUTPUT	DC1,500V 1minute, DC500V 50MΩ min (20±15°C)		
ENVIRONMENT	OPERATING TEMP.,HUMID.AND ALTITUDE	-40 to +85°C, 20 - 95%RH (Non condensing), 3,000m (10,000feet) max		
	STORAGE TEMP.,HUMID.AND ALTITUDE	-40 to +100°C, 20 - 95%RH (Non condensing), 9,000m (30,000feet) max (Refer to the Instruction Manual)		
	VIBRATION	10 - 55Hz, 49.0m/s ² (5G), 3minutes period, 60minutes each along X, Y and Z axis		
	IMPACT	196.1m/s ² (20G), 11ms, once each X, Y and Z axis		
SAFETY	AGENCY APPROVALS	UL60950-1, C-UL (CSA60950-1), EN62368-1		
OTHERS	CASE SIZE/WEIGHT	38.7 × 4.2 × 22.4mm [1.52 × 0.166 × 0.88 inches] (W × H × D) / 8g max		
	COOLING METHOD	Convection		

*1 At rated input(DC48V), rated load and 25°C

External view

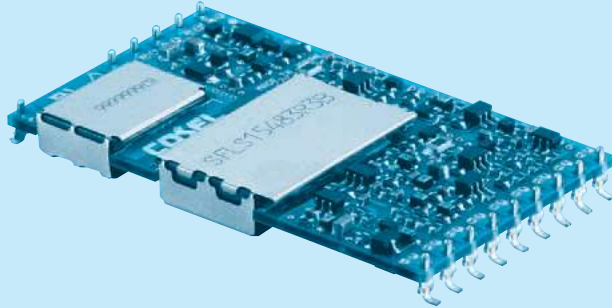


:Sn with Ni barreir

SFLS15

SFL S 15 48 3R3 B

① ② ③ ④ ⑤ ⑥



- ① Series name
- ② Single output
- ③ Output wattage
- ④ Input voltage
48:DC36 - 76V
- ⑤ Output voltage
- ⑥ Mounting type
B :SMD

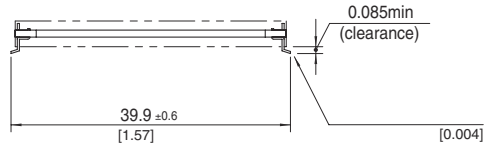
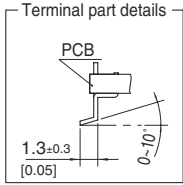
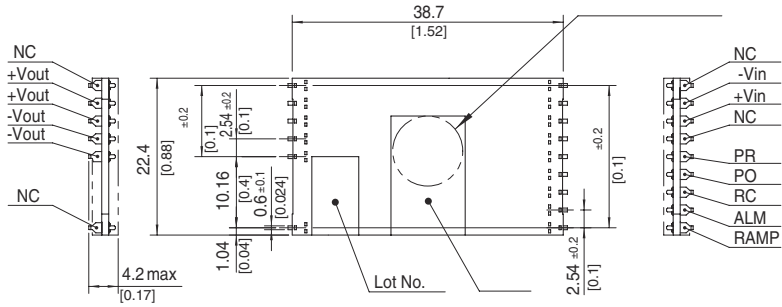
MODEL	SFLS15481R2	SFLS15481R5	SFLS15481R8	SFLS15482R5	SFLS15483R3	SFLS154805	SFLS15485R2	SFLS154812
MAX OUTPUT WATTAGE[W]	6.24	7.8	8.1	11.25	14.85	15.0	15.6	15.0
DC OUTPUT	1.2V 5.2A	1.5V 5.2A	1.8V 4.5A	2.5V 4.5A	3.3V 4.5A	5V 3A	5.2V 3A	12V 1.25A

SPECIFICATIONS

	MODEL	SFLS15481R2	SFLS15481R5	SFLS15481R8	SFLS15482R5	SFLS15483R3	SFLS154805	SFLS15485R2	SFLS154812
INPUT	VOLTAGE[V]	DC36 - 76							
	CURRENT[A]	*1 0.16typ	0.20typ	0.20typ	0.27typ	0.35typ	0.35typ	0.37typ	0.35typ
	EFFICIENCY[%]	*1 81typ	82typ	85typ	87typ	89typ	89typ	89typ	89typ
	START-UP VOLTAGE[V]	DC32 - 36							
	HYSTERESIS VOLTAGE[V]	DC2 min							
OUTPUT	VOLTAGE[V]	1.2	1.5	1.8	2.5	3.3	5	5.2	12
	CURRENT[A]	5.2	5.2	4.5	4.5	4.5	3	3	1.25
	VOLTAGE ACCURACY[%]	+5, -3							
	RIPPLE[mVp-p]	25max							
	RIPPLE NOISE[mVp-p]	50max							
START-UP TIME[ms]	20 - 100max (DCIN 48V, Io=100%)								
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION	Works over 103% of rating							
	OVERVOLTAGE PROTECTION	Works at 115 - 160% of rating				Works at 115 - 150% of rating			
	LOWVOLTAGE PROTECTION	Works at 93% max of rating							
	REMOTE ON/OFF	Provided(RC open : ON, short between RC and +Vin : OFF)							
ISOLATION	INPUT-OUTPUT	DC1,500V 1minute, DC500V 50MΩ min (20±15°C)							
ENVIRONMENT	OPERATING TEMP.,HUMID.AND ALTITUDE	-40 to +85°C, 20 - 95%RH (Non condensing), 3,000m (10,000feet) max							
	STORAGE TEMP.,HUMID.AND ALTITUDE	-40 to +100°C, 20 - 95%RH (Non condensing), 9,000m (30,000feet) max (Refer to the Instruction Manual)							
	VIBRATION	10 - 55Hz, 49.0m/s ² (5G), 3minutes period, 60minutes each along X, Y and Z axis							
	IMPACT	196.1m/s ² (20G), 11ms, once each X, Y and Z axis							
SAFETY	AGENCY APPROVALS	UL60950-1, C-UL (CSA60950-1), EN62368-1							
OTHERS	CASE SIZE/WEIGHT	38.7 × 4.2 × 22.4mm [1.52 × 0.166 × 0.88 inches] (W × H × D) / 8g max							
	COOLING METHOD	Convection							

*1 At rated input(DC48V), rated load and 25°C

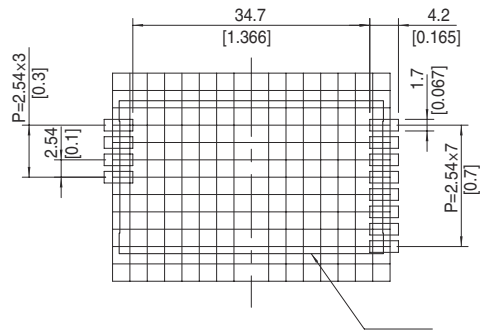
External view



- ※Dimensions in mm, []= inches
- ※Tolerance ±0.5 [±0.02]
- ※Weight:8g max
- ※Terminal thickness:0.3±0.1 [0.012]

:Sn with Ni barreir

Recommended size for processing PCB (TOP VIEW)



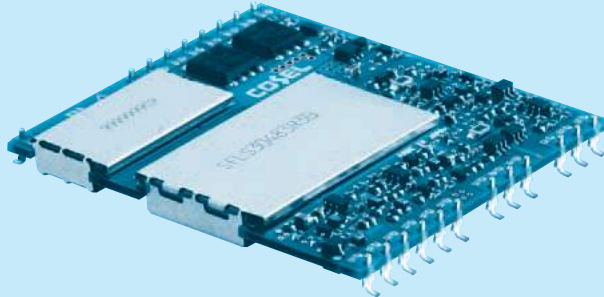
※Dimensions in: $\frac{\text{mm}}{\text{[inch]}}$

※Div.: 0.1inch

SFLS30

SFL S 30 48 3R3 B

① ② ③ ④ ⑤ ⑥



- ① Series name
- ② Single output
- ③ Output wattage
- ④ Input voltage
48:DC36 - 76V
- ⑤ Output voltage
- ⑥ Mounting type
B :SMD

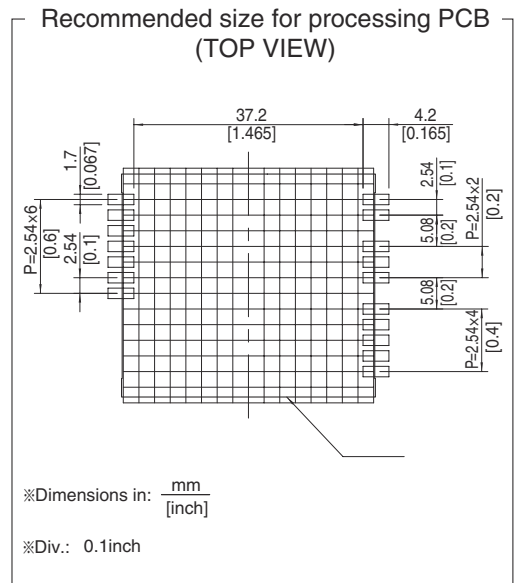
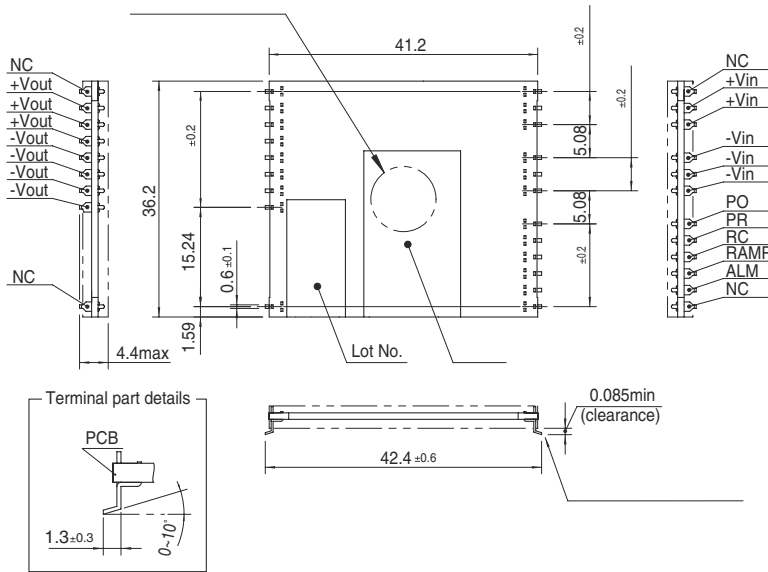
	14.4	16.5	19.8	25.0	29.7	30.0
	1.2V 12A	1.5V 11A	1.8V 11A	2.5V 10A	3.3V 9A	5V 6A

SPECIFICATIONS

	MODEL	SFLS30481R2	SFLS30481R5	SFLS30481R8	SFLS30482R5	SFLS30483R3	SFLS304805
INPUT	VOLTAGE[V]	DC36 - 76					
	CURRENT[A]	*1 0.36typ	0.40typ	0.47typ	0.58typ	0.68typ	0.69typ
	EFFICIENCY[%]	*1 84typ	86typ	88typ	90typ	91typ	91typ
	START-UP VOLTAGE[V]	DC32 - 36					
	HYSTERESIS VOLTAGE[V]	DC2 min					
OUTPUT	VOLTAGE[V]	1.2	1.5	1.8	2.5	3.3	5
	CURRENT[A]	12	11	11	10	9	6
	VOLTAGE ACCURACY[%]	+5, -3					
	RIPPLE[mVp-p]	25max					
	RIPPLE NOISE[mVp-p]	50max					
	START-UP TIME[ms]	20 - 100max (DCIN 48V, Io=100%)					
PROTECTION CIRCUIT AND OTHERS	OVERCURRENT PROTECTION	Works over 103% of rating					
	OVERVOLTAGE PROTECTION	Works at 115 - 160% of rating			Works at 115 - 150% of rating		
	LOWVOLTAGE PROTECTION	Works at 93% max of rating					
	REMOTE ON/OFF	Provided(RC open : ON, short between RC and +Vin : OFF)					
ISOLATION	INPUT-OUTPUT	DC1,500V 1minute, DC500V 50MΩ min (20±15°C)					
ENVIRONMENT	OPERATING TEMP.,HUMID.AND ALTITUDE	-40 to +85°C, 20 - 95%RH (Non condensing), 3,000m (10,000feet) max					
	STORAGE TEMP.,HUMID.AND ALTITUDE	-40 to +100°C, 20 - 95%RH (Non condensing), 9,000m (30,000feet) max (Refer to the Instruction Manual)					
	VIBRATION	10 - 55Hz, 49.0m/s ² (5G), 3minutes period, 60minutes each along X, Y and Z axis					
	IMPACT	196.1m/s ² (20G), 11ms, once each X, Y and Z axis					
SAFETY	AGENCY APPROVALS	UL60950-1, C-UL (CSA60950-1), EN62368-1					
OTHERS	CASE SIZE/WEIGHT	41.2 × 4.4 × 36.2mm [1.62 × 0.174 × 1.43 inches] (W × H × D) / 16g max					
	COOLING METHOD	Convection					

*1 At rated input(DC48V), rated load and 25°C

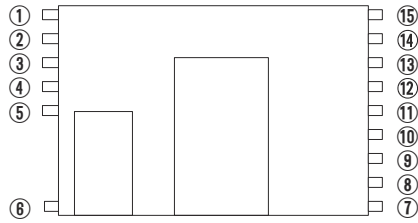
External view



:Sn with Ni barreir

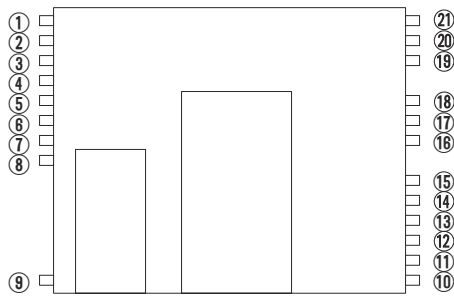
Pin Configuration

SFLS10 / SFLS15



No.	Pin Name	Function
①	NC	Not connected / Adhesive dispensing
②,③	+Vout	+DC output
④,⑤	-Vout	-DC output
⑥	NC	Not connected / Adhesive dispensing
⑦	RAMP	Ramp-rate control
⑧	ALM	Alarm
⑨	RC	Remote ON/OFF
⑩	PO	Start in/out
⑪	PR	Power ready / Sequence control
⑫	NC	Not connected
⑬	+Vin	+DC input
⑭	-Vin	-DC input
⑮	NC	Not connected / Adhesive dispensing

SFLS30



No.	Pin Name	Function
①	NC	Not connected / Adhesive dispensing
②,③,④	+Vout	+DC output
⑤,⑥,⑦,⑧	-Vout	-DC output
⑨,⑩	NC	Not connected / Adhesive dispensing
⑪	ALM	Alarm
⑫	RAMP	Ramp-rate control
⑬	RC	Remote ON/OFF
⑭	PR	Power ready / Sequence control
⑮	PO	Start in/out
⑯, ⑰, ⑱	-Vin	-DC input
⑲, ⑳	+Vin	+DC input
㉑	NC	Not connected / Adhesive dispensing

Assembling and Installation Method

Automatic mounting

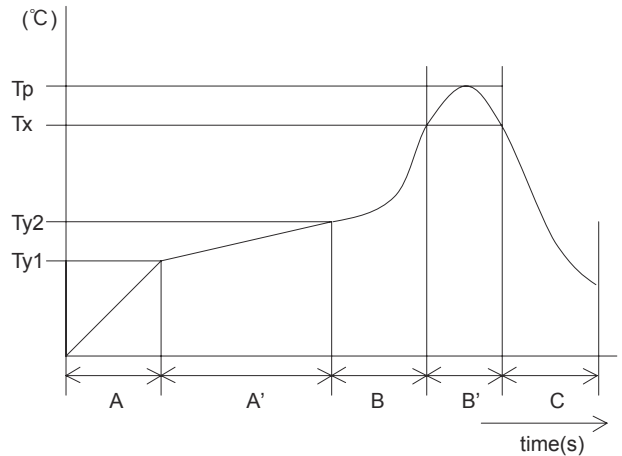
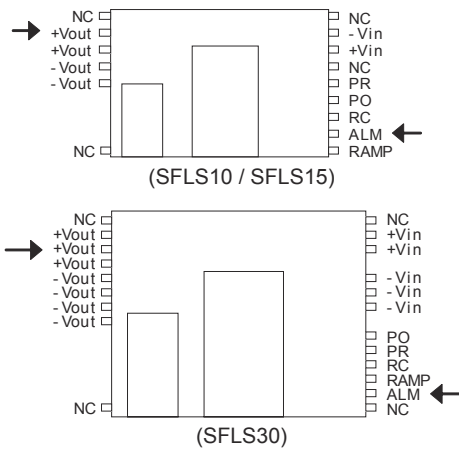
- SFLS series is designed to have a large flat area in the center of the top surface to serve as a pick up point for automated vacuum pick and place equipment.
- An excessively low bottom dead point of the suction nozzle imposes great force on the core during mounting, causing cracked core. So during mounting, take enough care.

Implementation · Mounting Method

Soldering temperature

(1) Reflow soldering

- Below and right figure show the conditions of reflow soldering. Please verify the temperature of the ALM pin and +Vout pin satisfy to reflow condition.
- Improper reflow condition may degrade the reliability of the internal components.
- While soldering, having vibration or impact on the unit should be avoided, because of solder melting.



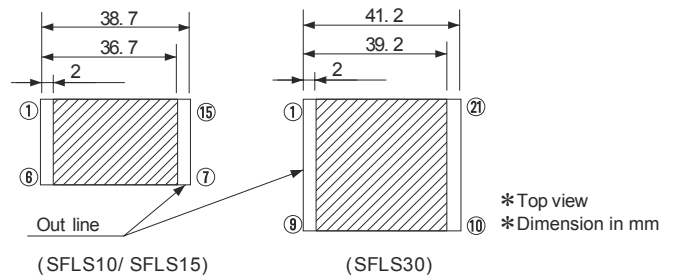
A	1.0 - 5.0°C/ s
A'	Ty1 : 160±10°C Ty2 : 180±10°C Ty1 - Ty2 : 120s max
B	1.0 - 5.0°C/ s
B'	Tp : Max245°C 10s max Tx : 220°C or more : 70s max
C	1.0 - 5.0°C/ s

(2) Soldering iron

- 340°C to 360°C, less than 5 seconds.

Mounting method

- Avoid placing pattern layout in hatched area in right figure to insulate between pattern and power supply.



Stress to the product

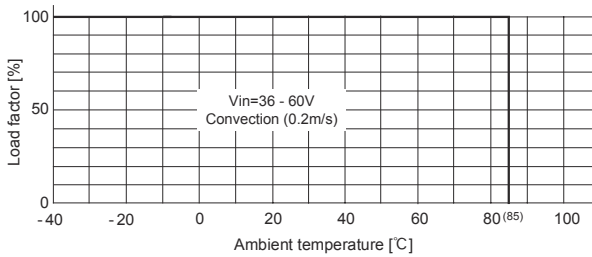
- SFLS series transformer core and choke coil core are attached by glue, and there is a cover over the core, which is attached by a clasp. There is a possibility that the core will be removed and power supply will be damaged when it took stress by the fall or some kind of stress.

Derating

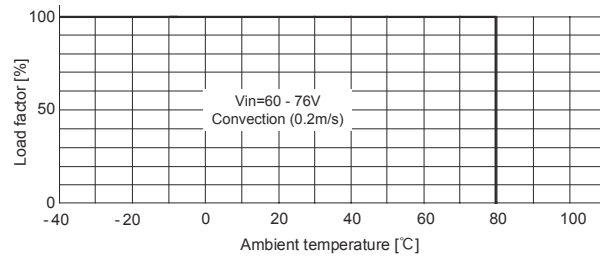
Ambient temperature derating curve

It is necessary to note thermal fatigue life by power cycle. Please reduce the temperature fluctuation range as much as possible when the up and down of temperature are frequently generated.

① Vin=DC36V - 60V



② Vin=DC60V - 76V



Instruction Manuals

Please see catalog and instruction manual before you use.

Instruction Manuals <https://www.cosel.co.jp/redirect/catalog/en/SFLS/>
 Before using our product <https://en.cosel.co.jp/technical/caution/index.html>

SFLS



NOTICE



Basic Characteristics Data

		[kHz]	Input current		Inrush current protection	PCB/Pattern			Series/Parallel operation availability	
						Material	Single sided	Double sided	Series operation	Parallel operation
	Single ended forward converter	630 - 710	*1	-	-	glass fabric base,epoxy resin		Multilayer	Yes	Yes
SFLS15	Single ended forward converter	630 - 710	*1	-	-	glass fabric base,epoxy resin		Multilayer	Yes	Yes
SFLS30	Single ended forward converter	480 - 540	*1	-	-	glass fabric base,epoxy resin		Multilayer	Yes	Yes

*1 Refer to Specification.