

Orient Award



ISO 14001:2004



ISO 9001:2000

INNOBIZ

The certificates of
INNO-BIZ (SMBA)



The certificates of
promising medium
and small enterprise
(SMBA)



ORIENT ELECTRONICS



关于我们

奥连特电子公司（华仁）成立于1979年，是以“最佳质量、最佳服务”为质量方针，专门生产高可靠性、高效率通讯用、产业用开关电源为主业的专业制造商。

奥连特电子公司按照客户要求取得UL, CSA安全规格-SMPS，NOISE Filter取得ISO9001，KSA9001国际品质认证。

目前我们具备大概600种的标准品和定制品。

- **成立于1979年**
- **关于开关电源，通过40年的经验**
- **在国内第一开关电源制造商**
- **生产线在韩国城南市**
- **生产能力: 3,500 m² 工厂规模和每个月50,000只生产能力**

公司主要客户

TOSHIBA

SAMSUNG TECHWIN

VISSEM

HYUNDAI
WIA

 **HYUNDAI**
ELEVATOR CO., LTD.

Mirae 

 **ThyssenKrupp**

 Chungho ComNet

 **MITSUBISHI**
ELEVATOR KOREA

 Hanwha
TechM

 **SAMIK**

 **ADT**
WORLD No.1

ADT캡스

 SeeTech
SEETECH CO., LTD.

ROVEN

OTIS

 DAEHAN ULTRAVISION

 에스원

 PULOON
TECH

 **SAMSUNG**

SAMSUNG NETWORKS

 **NEW POWER**
PLASMA

LS Industrial System

 **HYUNDAI**
HEAVY INDUSTRIES CO.,LTD.

 **MEDIANA**

HYUNDAI
MOBIS

 Dongbu Robot

SunStar

CAS

 **LISTEM**

 **DOOSAN**
Infracore

 **SK** telecom

 **NEXEN**
TIRE CORPORATION

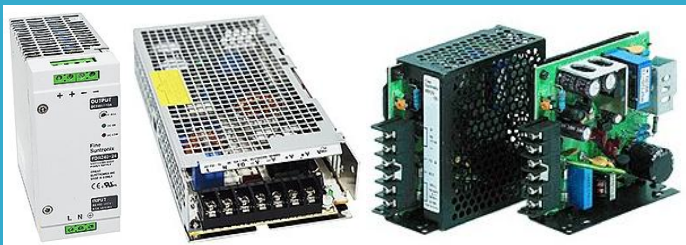
 **LG Display**

 **Lotvacuum**
Leader of Vacuum Technology

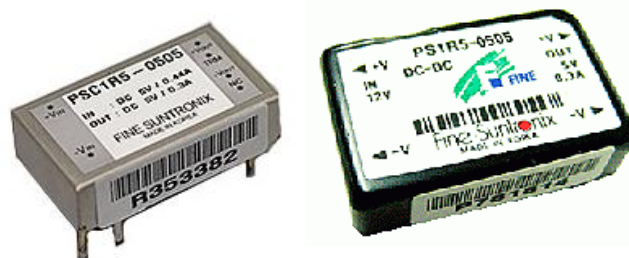
 **CGV**
LOTTE
ALUMINIUM

 **5678**
SMRT
Seoul Metropolitan
Rapid Transit Corporation

S.M.P.S.



DC/DC Converter



Noise Filter





S.S.R. / ETC.



标准品 (开关电源)

FDR Series



- **DIN Rail Product (Installation on DIN Rail 35mm Only)**
- Low cost and compact size
- Universal AC Input
- Line up: 15W, 30W, 50W, 70W, 120W, 180W, 240W, 480W
- Output: 05V, 12V, 24V, 48V
- Built-in Active PFC Function: PF>0.93 (180W, 240W Only)
- Protections : Short Circuit / Over Voltage / Over Current / Over Temperature
- LED Indicator : POWER ON , DC LOW
- Safety :   CB
- 3 year warranty

Applied Field



LCD Production facilities



Elevator control panel



CNC Equipment



Control board for Industrial robot

标准品 (开关电源)

FDR Series Specification

Model		FDR15	FDR30	FDR50	FDR70	
INPUT	Voltage, Frequency	AC100-240V (AC90 ~ 264V or DC127 ~ 370V), 50/60Hz (47 ~ 63Hz) Universal Input				
	Current	110V	0.45A (Io=100%)	0.9A (Io=100%)	1.0A (Io=100%)	1.5A (Io=100%)
		220V	0.3A (Io=100%)	0.6A (Io=100%)	0.6A (Io=100%)	1.0A (Io=100%)
Inrush Current		20A typ. (AC IN 110V, Io=100%), 40A typ. (AC IN 220V, Io=100%) at cold start.				
OUTPUT	Turn on time (Typ)	200mS (AC IN 110V, Io=100%)	200mS (AC IN 110V, Io=100%)	560mS (AC IN 110V, Io=100%)	560mS (AC IN 110V, Io=100%)	
	Turn off time (Typ)	20mS (AC IN 110V, Io=100%)	20mS (AC IN 110V, Io=100%)	20mS (AC IN 110V, Io=100%)	20mS (AC IN 110V, Io=100%)	
PROTECTION	Over Current Protection	Works at over 110% of rating and recovers automatically				
	Over Voltage Protection	Works at 115 ~ 145% of rating				
ELECTRICALLY ISOLATED	INPUT-OUTPUT	AC 3,000V (1 minute/ 20mA), DC 500V, 100MΩ (At room temperature & Humidity)				
	INPUT-CASE, FG	AC 2,000V (1 minute/ 20mA), DC 500V, 100MΩ (At room temperature & Humidity)				
	OUTPUT-CASE, FG	AC 500V (1 minute/ 100mA), DC 500V, 100MΩ (At room temperature & Humidity)				
ENVIRONMENT	OPERATING TEMP AND HUMID	-25 ~ +70°C (Required Derating), 20 ~ 90% RH (Non Condensing)				
	STORAGE TEMP AND HUMID	-40 ~ +85°C, 20 ~ 90% RH (Non Condensing)				
	VIBRATION	10 ~ 55Hz at 1G, 3 minutes period, 30 minutes along X, Y and Z axis				
SAFETY	SAFETY REGULATION	UL, C-UL, CE, CB				
	LINE CONDUCTED RF VOLTAGE	Complied with FCC Part 15 Class B, VCCI-B, CISPR22-B, EN55022-B				
Size		95 x 22.5 x 108 mm	95 x 36 x 108 mm	130 x 30 x 125 mm	130 x 33 x 125 mm	
Weight (typ)		200g	250g	570g	650g	

标准品 (开关电源)

FDR Series Specification

Model		FDR120	FDR180	FDR240		
INPUT	Voltage, Frequency	AC100-240V (AC90 ~ 264V or DC127 ~ 370V), 50/60Hz (47 ~ 440Hz) Universal Input				
	Current ^{*note1)}	110V	2.4A (Io=100%)	2.0A (Io=100%)	2.5A (Io=100%)	
		220V	1.4A (Io=100%)	1.0A (Io=100%)	1.25A (Io=100%)	
	Inrush Current	20A typ./40A typ.	50A typ./50A typ.	50A typ./50A typ.	(AC IN 110V/220V, Io=100%) at cold start.	
OUTPUT	Turn on time (Typ)	560mS (AC IN 110V, Io=100%)	3600mS (AC IN 110V, Io=100%)	3600mS (AC IN 110V, Io=100%)		
	Turn off time (Typ)	20mS (AC IN 110V, Io=100%)	20mS (AC IN 110V, Io=100%)	20mS (AC IN 110V, Io=100%)		
PROTECTION	Over Current Protection	Works at over 110% of rating and recovers automatically				
	Over Voltage Protection	Works at 115 ~ 145% of rating				
ELECTRICALLY ISOLATED	INPUT-OUTPUT	AC 3,000V (1 minute/ 20mA), DC 500V, 100MΩ (At room temperature & Humidity)				
	INPUT-CASE, FG	AC 2,000V (1 minute/ 20mA), DC 500V, 100MΩ (At room temperature & Humidity)				
	OUTPUT-CASE, FG	AC 500V (1 minute/ 100mA), DC 500V, 100MΩ (At room temperature & Humidity)				
ENVIRONMENT	OPERATING TEMP AND HUMID	-25 ~ +70°C (Required Derating), 20 ~ 90% RH (Non Condensing)				
	STORAGE TEMP AND HUMID	-40 ~ +85°C, 20 ~ 90% RH (Non Condensing)				
	VIBRATION	10 ~ 55Hz at 1G, 3 minutes period, 30 minutes along X, Y and Z axis				
SAFETY	SAFETY REGULATION	UL, C-UL, CE, CB				
	LINE CONDUCTED RF VOLTAGE	Complied with FCC Part 15 Class B, VCCI-B, CISPR22-B, EN55022-B				
Size		130 x 40 x 125 mm	130 x 50 x 125 mm	130 x 60 x 125 mm		
Weight (typ)		800g	1kg	1.2kg		

标准品 (开关电源)

DIN rain type model comparison

		FDR120 (Orient)		KLE(N)A120F (COSEL)		
MaX Output Wattage (W)		120		120		
Input	Voltage (V)	AC100~240 (AC90~264V or DC 127~380V)		AC85~264		
	Currnet (A)	110V	2.4 typ		1.2 typ	
		220V	1.4 typ		0.6 typ	
	Frequency (Hz)	50/60 (47~64)		50/60 (45~66)		
	Efficiency (%)	110V	85 typ (24V), 86 typ (48V)		86.5 typ	
		220V	87 typ (24V), 88 typ (48V)		88 typ	
Inrush Current (A)	110V	20 typ (lo=100%)		20 typ (lo=100%)		
	220V	40 typ (lo=100%)		40 typ (lo=100%)		
Output	Voltage (V)	24	48	24	48	
	Currnet (A)	5	2.5	5	2.5	
	Voltage Adjustment Range (V)	22.5~28.5	45~55	21.6~26.4	43.2~52.8	
	Regulation, Line (mV)	120 max	240 max	96 max	192 max	
	Regulation, Road (mV)	240 max	480 max	150 max	300 max	
	Ripple, Noise (mV) / 0~70°C	100	120	150	150	
	Temperature Drift (mV)	360	720	96	192	
	Rise Time (mS)	560 max (AC IN 110V lo=100%)		500 typ (AC IN 110V lo=100%)		
Holding Time (mS)	20 typ (AC IN 110V lo=100%)		20 typ (AC IN 110V lo=100%)			
Function	Over Current Protection (A)	Works at over 110~150% of rating, current limiting		Works over 105% of rating and recovers automatically		
	Over Voltage Protection (V)	30~35	60~65	27.6~33.6	54~67.2	
	DC_OK LAMP	LED (GREEN)		LED (GREEN)		
Electrically Isolated	Input-Output	AC3,000V 1minute, Cutoff current=20mA, DC 500V 100MΩ (At room temperature & Humidity)		AC3,000V 1minute, Cutoff current=10mA, DC 500V 50MΩ min (At room temperature & Humidity)		
	Input Case, FG	AC2,000V 1minute, Cutoff current=20mA, DC 500V 100MΩ (At room temperature & Humidity)		AC2,000V 1minute, Cutoff current=10mA, DC 500V 50MΩ min (At room temperature & Humidity)		
	Outpur Case, FG	AC500V 1minute, Cutoff current=20mA, DC 500V 100MΩ (At room temperature & Humidity)		AC500V 1minute, Cutoff current=100mA, DC 500V 50MΩ min (At room temperature & Humidity)		
Environment	Operating Temp and Humid	-25~+70°C (Required Derating), 20~90% RH (Non Condensing)		-25~+70°C (Required Derating), 20~90% RH (Non Condensing)		
	Storage Temp and Humid	-40~+85°C, 20~90% RH (Non Condensing)		-30~+85°C, 20~90% RH (Non Condensing)		
	Vibration	10~55Hz at 2G, 1minutes period, 1hour along X, Y and Z axis		10~55Hz, 19.6m/s ² (2G), 3minutes period, 60minutes along Z axis (Non operating, mounted on DIN Rail)		
Safty	Safety Regulation	UL, C-UL, CE, CB		UL60950-1, C-UL (CSA60950-1), EN60950-1, UL508, Compiled with DEN-AN		
	Conducted Emission	Compiled with EN55011 / EN55022-B, FCC-B		Compiled with FCC-B, VCCI-B, CISPR22-B, EN55011-B, EN55022-B		
	Harmonic Current	Compiled with EN61000-3-2 (Class-A)		Compiled with IEC61000-3-2 (Class A)		
Size	Dimension	40 X 130 X 125 mm (W X H X D)		38 X 124 X 117 mm (W X H X D)		
	Weight	800g		580g		

标准品 (开关电源)

JSF Series



- Very low cost
- Universal input voltage of user selectable voltage
- Over voltage / over current protection
- Line up: 15W, 35W, 50W, 75W, 100W, 150W, 200W, 350W
- Output: 3.3V, 5V, 9V, 12V, 15V, 24V, 48V
- 3 year warranty

CSF Series / NCSF Series



- Small size
- Single, double, triple output
- Cost effective NCSF300 & 600
- Universal input voltage
- Built-in active PFC function, PF>0.95
- Protections : Short circuit / Over voltage / Over current / Over temperature
- Line up:
 - CSF Series:** 15W, 30W, 50W, 75W, 100W, 150W, 300W, 600W, 1500W
 - NCSF Series:** 300W, 600W
- Output: 3.3V, 5V, 9V, 12V, 15V, 24V, 48V
- 4 Year warranty

标准品 (开关电源)

JSF Series Specification

Model		JSF25	JSF35	JSF50	JSF75	
INPUT	Voltage, Frequency	AC100-240V (AC88 ~ 264V or DC125 ~ 370V), 50/60Hz (47 ~ 440Hz) Universal Input				
	Current ^{*note1)}	110V	0.7A (Io=100%)	0.8A (Io=100%)	1.3A (Io=100%)	1.6A (Io=100%)
		220V	0.4A (Io=100%)	0.55A (Io=100%)	0.8A (Io=100%)	1.0A (Io=100%)
	Inrush Current	15A typ. (AC IN 110V, Io=100%) 30A typ. (AC IN 220V, Io=100%) at cold start. 20A typ. (AC IN 110V, Io=100%), 40A typ. (AC IN 220V, Io=100%) at cold start.				
OUTPUT	Turn on time (Typ)	1200mS (AC IN 110V, Io=100%)	1200mS (AC IN 110V, Io=100%)	1200mS (AC IN 110V, Io=100%)	1500mS (AC IN 110V, Io=100%)	
	Turn off time (Typ)	14mS (AC IN 110V, Io=100%)	15mS (AC IN 110V, Io=100%)	14mS (AC IN 110V, Io=100%)	14mS (AC IN 110V, Io=100%)	
PROTECTION	Over Current Protection	Short Protection Works at over 110% of rating and recovers automatically				
	Over Voltage Protection	Works at 115 ~ 140% of rating				
ELECTRICALLY ISOLATED	INPUT-OUTPUT	AC 3,000V (1 minute/ 20mA), DC 500V, 100MΩ (At room temperature & Humidity)				
	INPUT-CASE, FG	AC 1,500V (1 minute/ 20mA), DC 500V, 100MΩ (At room temperature & Humidity)		AC 2,000V (1 minute/ 20mA), DC 500V, 100MΩ (At room temperature & Humidity)		
	OUTPUT-CASE, FG	AC 500V (1 minute/100mA), DC 500V, 100MΩ (At room temperature & Humidity)				
ENVIRONMENT	OPERATING TEMP AND HUMID	-10 ~ +70°C (Required Derating), 20 ~ 90% RH (Non Condensing)				
	STORAGE TEMP AND HUMID	-40 ~ +85°C, 20 ~ 90% RH (Non Condensing)				
	VIBRATION	10 ~ 55Hz at 1G, 3 minutes period, 30 minutes along X, Y and Z axis				
SAFETY	SAFETY REGULATION	UL, C-UL, CE, CB				
	LINE CONDUCTED RF VOLTAGE	Complied with EN55011/EN55022-B, FCC-B				
SIZE		79 x 51 x 28.5 mm	99 x 82 x 36 mm	99 x 97 x 36 mm	129 x 98 x 38 mm	
WEIGHT (TYP)		200g	330g	350g	410g	

标准品 (开关电源)

JSF Series Specification

Model		JSF100	JSF150		
INPUT	Voltage, Frequency	AC100-240V (AC88 ~ 264V or DC125 ~ 370V), 50/60Hz (47 ~ 440Hz) Universal Input	AC100-120V / 200-240V (AC88 ~ 132V / 176 ~ 264V), 50/60Hz (47 ~ 440Hz) or DC248 ~ 370V User-Selectable		
	Current ^{*note1)}	110V	2.2A (Io=100%)	3.5A (Io=100%)	
		220V	1.2A (Io=100%)	2.0A (Io=100%)	
	Inrush Current	20A typ. (AC IN 110V, Io=100%), 40A typ. (AC IN 220V, Io=100%) at cold start.			
OUTPUT	Turn on time (Typ)	2000mS (AC IN 110V, Io=100%)	1500mS (AC IN 110V, Io=100%)		
	Turn off time (Typ)	14mS (AC IN 110V, Io=100%)	14mS (AC IN 110V, Io=100%)		
PROTECTION	Over Current Protection	Works at over 110% of rating and recovers automatically			
	Over Voltage Protection	Works at 115 ~ 140% of rating			
ELECTRICALLY ISOLATED	INPUT-OUTPUT	AC 3,000V (1 minute/ 20mA), DC 500V, 100MΩ (At room temperature & Humidity)			
	INPUT-CASE, FG	AC 2,000V (1 minute/ 20mA), DC 500V, 100MΩ (At room temperature & Humidity)			
	OUTPUT-CASE, FG	AC 500V (1 minute/100mA), DC 500V, 100MΩ (At room temperature & Humidity)			
ENVIRONMENT	OPERATING TEMP AND HUMID	-10 ~ +70°C (Required Derating), 20 ~ 90% RH (Non Condensing)			
	STORAGE TEMP AND HUMID	-40 ~ +85°C, 20 ~ 90% RH (Non Condensing)			
	VIBRATION	10 ~ 55Hz at 1G, 3 minutes period, 30 minutes along X, Y and Z axis			
SAFETY	SAFETY REGULATION	UL, C-UL, CE, CB			
	LINE CONDUCTED RF VOLTAGE	Complied with EN55011/EN55022-B, FCC-B			
SIZE		159 x 97 x 38 mm	199 x 98 x 38 mm		
WEIGHT (TYP)		600g	700g		

标准品 (开关电源)

Enclosed type model comparison

			JSF150 (Orient)						PJA150F (COSEL)					
MaX Output Wattage (W)			150						120					
Input	Voltage (V)		AC100~120 / 200~240 (AC88~132/176~264) or DC248~370 / User selectable						AC85~264					
	Currnet (A)	110V	3.5 typ						1.7 typ					
		220V	2.0 typ						1.6 typ					
	Frequency (Hz)		50/60 (47~440)						50/60 (45~63)					
	Efficiency (%)	110V	74 typ	78 typ	80 typ	83 typ	85 typ	85 typ	87 typ	84 typ	84 typ	87 typ	87 typ	87 typ
220V									87 typ	87 typ	90 typ	90 typ	90 typ	
Inrush Current (A)	110V	20 typ (AC IN 110V, lo=100%), 40 typ (AC IN 220V, lo=100%) at cold start						16 typ (lo=90%) Ta=25°C at cold start 32 typ (lo=90%) Ta=25°C at cold start						
	220V													
Output	Voltage (V)		3.3	5	9	12	15	24	48	12	15	24	36	48
	Currnet (A)		30	26	16.5	12.5	10	6.5	3.3	12.5	10	6.4	4.2	3.2
	Regulation, Line (mV)		17 max	25 max	45 max	60 max	75 max	120 max	250 max	48 max	60 max	96 max	144 max	192 max
	Regulation, Road (mV)		66 max	50 max	90 max	60 max	75 max	120 max	240 max	100 max	120 max	150 max	150 max	300 max
	Ripple (mV)		50 max	50 max	100 max	100 max	100 max	100 max	180 max	120 max	120 max	120 max	150 max	150 max
	Ripple, Noise (mV)		80 max	80 max	120 max	120 max	120 max	120 max	200 max	150 max	150 max	150 max	200 max	200 max
	Temperature Drift (mV)		50 max	75 max	135 max	180 max	225 max	360 max	720 max	120 max	150 max	240 max	360 max	480 max
	Rise Time (mS)		1500 max (AC IN 110V lo=100%)						500 typ (AC IN 115V lo=100%) Ta=25°C					
Holding Time (mS)		14 typ (AC IN 110V lo=100%)						20 typ (AC IN 115V lo=100%)						
Function	Over Current Protection (A)		Works at over 100% of rating and recovers automatically						Works over 105% of rating and recovers automatically					
	Over Voltage Protection (V)		Works at 115~140% of rating						13.8~16.8	17.25~21	27.6~33.6	41.4~50.4	54~67.2	
	DC OK LAMP		LED (GREEN)						LED (GREEN)					
Electrically Isolated	Input-Output		AC3,000V 1minute, Cutoff current=20mA, DC 500V 100MΩ (At room temperature & Humidity)						AC3,000V 1minute, Cutoff current=10mA, DC 500V 50MΩ min (At room temperature & Humidity)					
	Input Case, FG		AC2,000V 1minute, Cutoff current=20mA, DC 500V 100MΩ (At room temperature & Humidity)						AC2,000V 1minute, Cutoff current=10mA, DC 500V 50MΩ min (At room temperature & Humidity)					
	Outpur Case, FG		AC500V 1minute, Cutoff current=20mA, DC 500V 100MΩ (At room temperature & Humidity)						AC500V 1minute, Cutoff current=100mA, DC 500V 50MΩ min (At room temperature & Humidity)					
Environment	Operating Temp and Humid		-10~+70°C (Required Derating), 20~90% RH (Non Condensing)						-25~+70°C (Required Derating), 20~90% RH (Non Condensing)					
	Storage Temp and Humid		-25~+75°C, 10~95% RH (Non Condensing)						-30~+85°C, 20~90% RH (Non Condensing)					
	Vibration		10~55Hz at 1G, 3minutes period, 30minutes along X, Y and Z axis						10~55Hz, 19.6m/s ² (2G), 3minutes period, 60minutes along X, Y and Z axis					
Safty	Safety Regulation		UL, C-UL, CE, CB						UL60950-1, C-UL (CSA60950-1), EN60950-1, UL508, Compiled with DEN-AN					
	Conducted Emission		Compiled with EN55011 / EN55022-B, FCC-B						Compiled with FCC-B, VCCI-B, CISPR22-B, EN55011-B, EN55022-B					
	Harmonic Current		Compiled with EN61000-3-2 (Class-A)						Compiled with IEC61000-3-2 (Class A)					
Size	Dimension		38 X 192 X 98 mm (W X H X D)						42 X 142 X 98 mm (W X H X D)					
	Weight		700g						600g					

标准品 (开关电源)

Old models

VSF series



- Line up: Single: 15W, 30W, 50W, 75W, 100W, 150W, 220W, 300W, 400W
Dual: 15W, 30W, 50W, 75W, 100W
Triple: 15W, 30W, 50W, 75W, 100W
- Output: 5V, 9V, 12V, 15V, 24V, 48V

ESF series



- Line up: 100W, 150W, 300W, 600W, 850W, 1000W, 1250W, 1500W
- Output: 3.3V, 5V, 9V, 12V, 15V, 24V, 48V

- Line up: 50W, 75W, 100W, 150W, 600W
- Output: 3.3V, 5V, 9V, 12V, 15V, 24V, 48V



PSF series

- Line up: Single: 15W, 25W, 35W, 50W, 60W, 80W, 100W, 150W, 200W, 300W
Dual: 30W, 50W, 60W, 80W, 100W
Triple: 30W, 50W, 60W, 80W, 100W
- Output: 3.3V, 5V, 9V, 12V, 15V, 24V, 48V



MSF series

标准品 (滤波器)



* RNS, RMS-S

- **Single Phase, AC250V**
- **5 Model(6A~30A)**
- **Quick and easy push-down terminal block/Cover Type**
- 1-Stage(Single 'L' circuit)
- High attenuation
- Low leakage
- DIN rail mountable: RNS-20**-DIN
- Dimension : 90 x 50 x 35 (W x D x H)
- Suitable for the products that
- Must conform to FCC, FTZ



* TNS, TMS-S

- **Three Phase, AC500V**
- **7 Model(6~60A)**
- **Quick and easy push-down terminal block/Cover Type**
- 1-Stage(Single 'L' circuit)
- High attenuation
- Low leakage
- Low-profile design
- DIN rail installation compatible type (Up to 30A)
- Suitable for the products that must conform to FCC, FTZ



标准品 (DC/开关电源)

DC/DC Converter



- Small, compact size
- High quality and reliability
- Isolated output
- Over current protection
- 2 year warranty

S.S.R.



- Compact size, Light
- CR Snubber and zero cross
- Steady Operation in wide temp
- Factory Automation
- Lighting
- 2 year warranty

标准品 (DC/DC电源模块, 固态继电器)

DC/DC Converter



- Small, compact size
- High quality and reliability
- Isolated output
- Over current protection
- 2 year warranty

S.S.R.



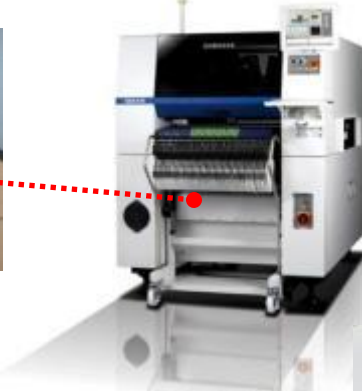
- Compact size, Light
- CR Snubber and zero cross
- Steady Operation in wide temp
- Factory Automation
- Lighting
- 2 year warranty

定制品

System Power Supply

CP60(Samsung Techwin)

- System power for Chip Mounter



MPS-PU(Mirea Industry)

- System power for Chip Mounter



SMPS for Elevator & application product

- Supplying SMPS, Noise Filter, Diode module to 3 Major domestic Elevator companies.
- IPM Driver , Inverter, Using for Control board



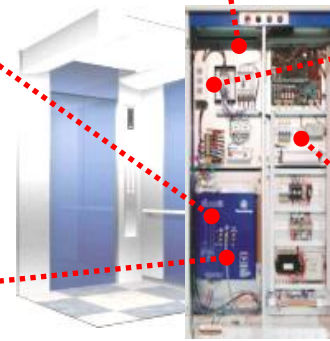
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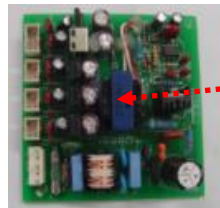
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<Elevator Control Panel>



< SMPS for IPM Driver >



< SMPS for Control Board >