

KWD-SERIES

Dual output 5W ~15W
AC-DC on-board type power supply

LAMBDA
DENSEI-LAMBDA



CE (Low Voltage Directive)

1 year warranty

Model name

KWD 15-1515

Name of series

Nominal output power

Nominal output voltage
1212: ±12V
1515: ±15V

Features

- CE marking (Low Voltage Directive)
- Compact on-board type AC-DC power
Input 85 ~ 265VAC universal input
- Wide Variation
Output power: 5W, 10W, 15W types
Output voltage: ±12V, ±15V types
- Over current and Over voltage protection
- 1 year warranty

Specifications

1. Input voltage range	85 ~ 265VAC(47 ~ 440Hz), 110 ~ 340VDC
2. Output voltage range	Fixed
3. Cooling	Convection cooling
4. Operating temperature (Standard mounting)	-10 ~ +70°C -10°C: 80%, 0 ~ +50°C: 100%, +60°C: 60%, +70°C: 25%
5. Withstand voltage	Input-output: 3kVAC, Input-FG: 2kVAC, Output-FG: 500VAC for 1 min.
6. Safety standard	Approved by UL1950 , CSA950 (KWD5: Approved by CSA234)
7. EMI	Conforms to FCC class B and VCCI-class 2
8. Functions	Over voltage protection (CH2 only: Zener diode clamp), Over current protection

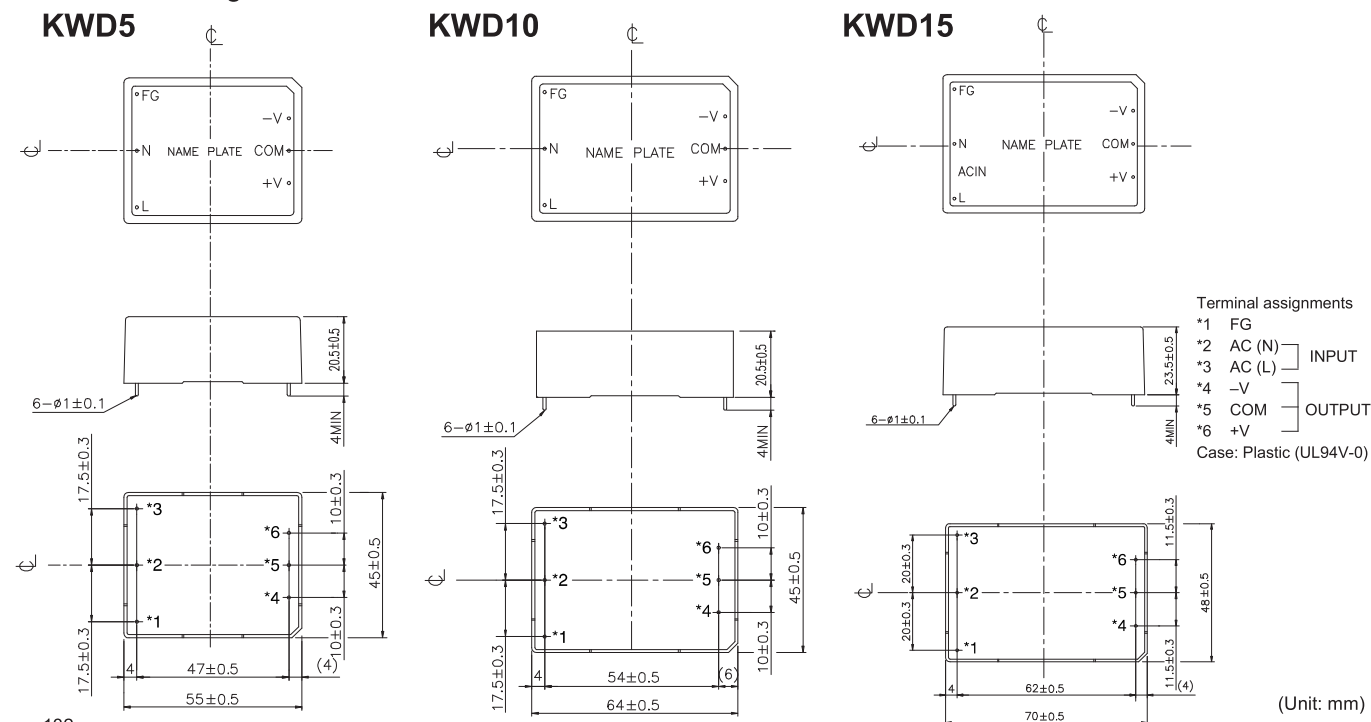
Product lineup

Model name		CH	Output voltage	Output current	Output power	UL	CSA	EN
KWD5	KWD5-1212	1	+12V	0.22A	5.3W	○	○	○
		2	-12V	0.22A				
	KWD5-1515	1	+15V	0.18A	5.4W	○	○	○
		2	-15V	0.18A				
KWD10	KWD10-1212	1	+12V	0.45A	10.6W	○	○	○
		2	-12V	0.45A				
	KWD10-1515	1	+15V	0.36A	10.8W	○	○	○
		2	-15V	0.36A				
KWD15	KWD15-1212	1	+12V	0.65A	15.6W	○	○	○
		2	-12V	0.65A				
	KWD15-1515	1	+15V	0.52A	15.6W	○	○	○
		2	-15V	0.52A				

- Request customer specification for further details of specifications, outline, characteristics, etc.
Read the instruction manual before usage.
- Contact us about delivery before ordering.

○ : Safety standard approved

Outline drawing

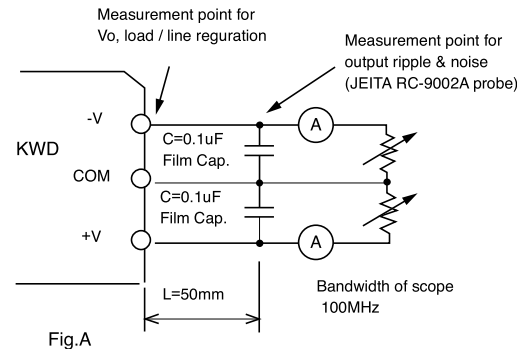


KWD5 Specifications

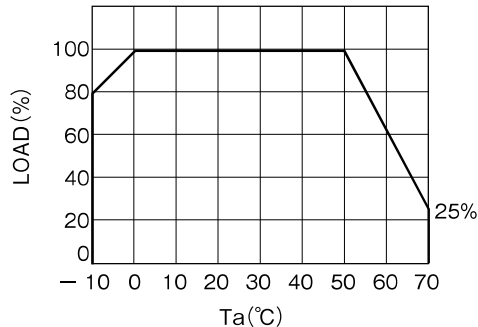
ITEMS/UNITS		MODEL	KWD5-1212		KWD5-1515	
		CH	1	2	1	2
Input	Voltage Range	(*2) V	AC85 - 265 or DC110 - 340			
	Frequency	(*2) Hz	47 - 440			
	Efficiency (typ)	(*1) %	69		69	
	Current (100VAC)(typ)	(*1) A	0.2			
	Inrush Current (100/200VAC)(typ)	A	15 / 30 at Ta = 25°C			
Output	Nominal Voltage	VDC	+12	-12	+15	-15
	Minimum Current	A	0	0	0	0
	Maximum Current	A	0.22	0.22	0.18	0.18
	Maximum Power	W	5.3		5.4	
	Voltage Setting Accuracy	%	Fixed ±5% (Max)		Fixed ±5% (Max)	
	Maximum Line Regulation(*3)(*4)	mV	60	60	75	75
	Maximum Load Regulation(*3)(*5)	mV	600	600	750	750
	Temperature Coefficient(*3)(*6)	mV	120	120	150	150
	Maximum Ripple & Noise (*3)	mVp-p	150	150	150	150
	Hold-up Time (100VAC)(typ)	ms	17 at 5W, Ta = 25°C			
Function	Over Current Protection (*7)		>105%			
	Over Voltage Protection (*8)		>110%			
	Parallel Operation		-----			
	Series Operation		Possible			
Environment	Operating Temperature (*9)	°C	-10 to 70 (-10 : 80%, 0 to 50 : 100%, 70 : 25%)			
	Storage Temperature	°C	-30 to 85			
	Operating Humidity	%RH	30 - 90 (No dewdrop)			
	Storage Humidity	%RH	20 - 95 (No dewdrop)			
	Vibration		10 - 55Hz, constant amplitude 1.65mmp-p (Max 98.1m/s ²), sweep 1 minute X, Y, Z 1 hour each			
	Shock		Less than 490.3m/s ² for 11±5mS on ±(X, Y, Z) axis each 3 times			
Isolation	Withstand Voltage		Input - Output : 3kVAC (20mA), Input - FG : 2kVAC (20mA), Output - FG : 500VAC (100mA) 1 min			
	Isolation Resistance		More than 100MΩ at 25°C and 70%RH Output - FG 500VDC			
	Safety Standards		Approved by UL60950 - 1, CSA C22.2 No.60950-1 & EN60950			
Standards	EMI	(*9)	Built to meet VCCI - Class B, FCC class B, VDE class B			
	Weight	g	75			
Mechanical	Size (W x H x D)	mm	45 x 20.5 x 55			

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- (*1) At 100VAC and maximum output power, Ta = 25°C.
- (*2) For cases where conformance to various safety specs (UL, CSA, TUV) are required, to be described as 100 - 240VAC, 50/60Hz on name plate.
- (*3) Please refer to Fig. A for measurement determination of line & load regulation and output ripple & noise voltage.
- (*4) From 85 - 265VAC constant load.
- (*5) From min load - full load (maximum power), constant input voltage.
- (*6) From 0 to 50°C, constant input voltage and load.
- (*7) Current limiting with automatic recovery. Avoid to operate over load or dead short for more than 30 seconds.
- (*8) Over voltage clamping by zener diode (on CH2 only).
- (*9) VDE class B with external capacitor.



Output Derating

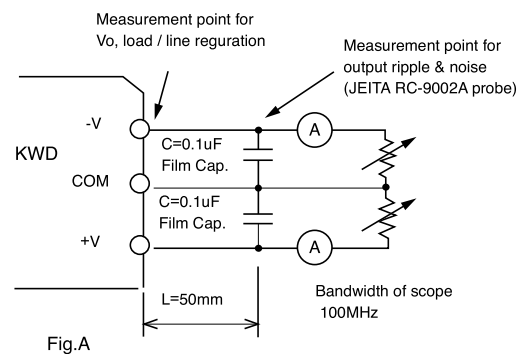


KWD10 Specifications

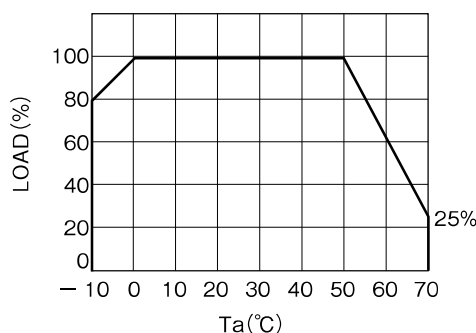
ITEMS/UNITS		MODEL	KWD10-1212		KWD10-1515	
			1	2	1	2
Input	Voltage Range	(*2) V	AC85 - 265 or DC110 - 340			
	Frequency	(*2) Hz	47 - 440			
	Efficiency (typ)	(*1) %	72			
	Current (100VAC)(typ)	(*1) A	0.3			
	Inrush Current (100/200VAC)(typ)	A	15 / 30 at Ta = 25°C			
Output	Nominal Voltage	VDC	+12	-12	+15	-15
	Minimum Current	A	0	0	0	0
	Maximum Current	A	0.45		0.36	
	Maximum Power	W	10.8		10.8	
	Voltage Setting Accuracy	%	Fixed ±5% (Max)			
	Maximum Line Regulation(*3)(*4)	mV	60	60	75	75
	Maximum Load Regulation (*3)(*5)	mV	600	600	750	750
	Temperature Coefficient(*3)(*6)		120	120	150	150
	Maximum Ripple & Noise (*3)	mVp-p	150	150	150	150
	Hold-up Time (100VAC)(typ)	ms	17 at 5W, Ta = 25°C			
Function	Over Current Protection (*7)		>105%			
	Over Voltage Protection (*8)		>110%			
	Parallel Operation		-----			
	Series Operation		Possible			
Environment	Operating Temperature	°C	-10 to 70 (-10 : 80%, 0 to 50 : 100%, 70 : 25%)			
	Storage Temperature	°C	-30 to 85			
	Operating Humidity	%RH	30 - 90 (No dewdrop)			
	Storage Humidity	%RH	20 - 95 (No dewdrop)			
Mechanical	Vibration		10 - 55Hz, constant amplitude 1.65mmp-p (Max 98.1m/s ²), sweep 1 minute X, Y, Z 1 hour each			
	Shock		Less than 490.3m/s ² for 11±5mS on ±(X, Y, Z) axis each 3 times			
	Cooling		Convection cooling			
Isolation	Withstand Voltage		Input - Output : 3kVAC (20mA), Input - FG : 2kVAC (20mA), Output - FG : 500VAC (100mA) for 1 minute each			
	Isolation Resistance		More than 100MΩ at 25°C and 70%RH Output - FG 500VDC			
Standards	Safety Standards		Approved by UL60950 - 1, CSA C22.2 No.60950-1 & EN60950			
	EMI (*9)		Built to meet VCCI - Class B, FCC class B, VDE class B			
Mechanical	Weight	g	100			
	Size (W x H x D)	mm	45 x 20.5 x 64			

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- (*1) At 100VAC and maximum output power, Ta = 25°C.
- (*2) For cases where conformance to various safety specs (UL, CSA, TUV) are required, to be described as 100 - 240VAC, 50/60Hz on name plate.
- (*3) Please refer to Fig. A for measurement determination of line & load regulation and output ripple & noise voltage.
- (*4) From 85 - 265VAC, constant load.
- (*5) From min load - full load (maximum power), constant input voltage.
- (*6) From 0 to +50°C, constant input voltage and load.
- (*7) Current limiting with automatic recovery. Avoid to operate over load or dead short for more than 30 seconds.
- (*8) Over voltage clamping by zener diode (on CH2 only).
- (*9) VDE class B with external capacitor.



Output Derating

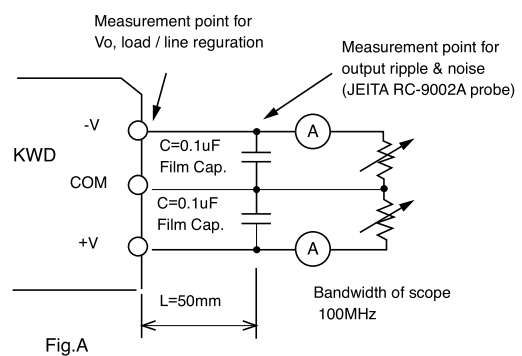


KWD15 Specifications

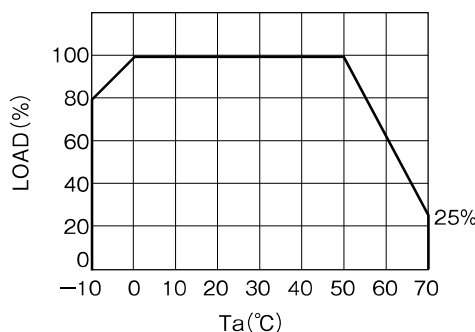
ITEMS/UNITS	MODEL	KWD15-1212		KWD15-1515		
		CH	1	2	1	2
Input	Voltage Range (*2)	V	AC85 - 265 or DC110 - 340			
	Frequency (*2)	Hz	47 - 440			
	Efficiency (typ) (*1)	%	75		75	
	Current (100VAC)(typ) (*1)	A	0.4			
	Inrush Current (100/200VAC)(typ)	A	20 / 40 at Ta = 25°C			
Output	Nominal Voltage	VDC	+12	-12	+15	-15
	Minimum Current	A	0			
	Maximum Current	A	0.65		0.52	
	Maximum Power	W	15.6		15.6	
	Voltage Setting Accuracy	%	Fixed ±5% (Max)			
	Maximum Line Regulation(*3)(*4)	mV	60	60	75	75
	Maximum Load Regulation(*3)(*5)	mV	600	600	750	750
	Temperature Coefficient(*3)(*6)		120	120	150	150
	Maximum Ripple & Noise (*3)	mVp-p	150	150	150	150
	Hold-up Time (100VAC)(typ)	ms	17 at 5W, Ta = 25°C			
	Function	Over Current Protection (*7)		>105%		
Over Voltage Protection (*8)			>110%			
Parallel Operation			-----			
Series Operation			Possible			
Environment	Operating Temperature	°C	-10 to 70 (-10 : 80%, 0 to 50 : 100%, 70 : 25%)			
	Storage Temperature	°C	-30 to 85			
	Operating Humidity	%RH	30 - 90 (No dewdrop)			
	Storage Humidity	%RH	20 - 95 (No dewdrop)			
	Vibration		10 - 55Hz, constant amplitude 1.65mmp-p (Max 98.1m/s ²), sweep 1 minute X, Y, Z 1 hour each			
Isolation	Shock		Less than 490.3m/s ² for 11±5mS on ±(X, Y, Z) axis each 3 times			
	Cooling		Convection cooling			
	Withstand Voltage		Input - Output : 3kVAC (20mA), Input - FG : 2kVAC (20mA), Output - FG : 500VAC (100mA) for 1 minute each			
Standards	Isolation Resistance		More than 100MΩ at 25°C and 70%RH Output - FG 500VDC			
	Safety Standards		Approved by UL60950 - 1, CSA C22.2 No.60950-1 & EN60950			
Mechanical	EMI (*9)		Built to meet VCCI - Class B, ECC Class B, VDE class B			
	Weight	g	150			
	Size (W x H x D)	mm	48 x 23.5 x 70 (Refer to outline drawing)			

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- (*1) At 100VAC and maximum output power, Ta = 25°C.
- (*2) For cases where conformance to various safety specs (UL, CSA, TUV) are required, to be described as 100 - 240VAC, 50/60Hz on name plate.
- (*3) Please refer to Fig. A for measurement determination of line & load regulation and output ripple & noise voltage.
- (*4) From 85 - 265VAC constant load.
- (*5) From min load - full load (maximum power), constant input voltage.
- (*6) From 0 to 50°C, constant input voltage and load.
- (*7) Current limiting with automatic recovery. Avoid to operate over load or dead short for more than 30 seconds.
- (*8) Over voltage clamping by zener diode (on CH2 only).
- (*9) VDE class B with external capacitor.

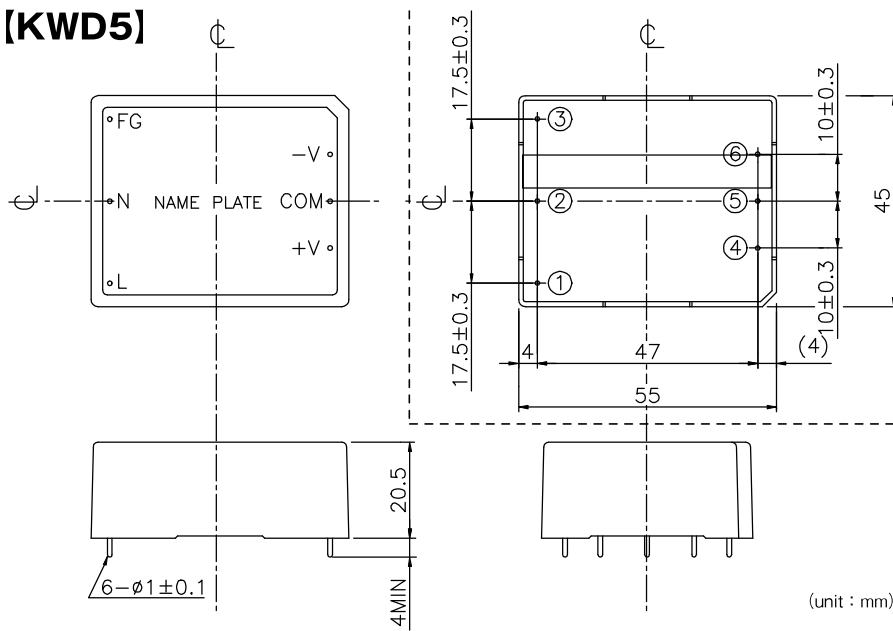


Output Derating



Outline Drawing

[KWD5]



*TERMINAL ASSIGNMRNTS

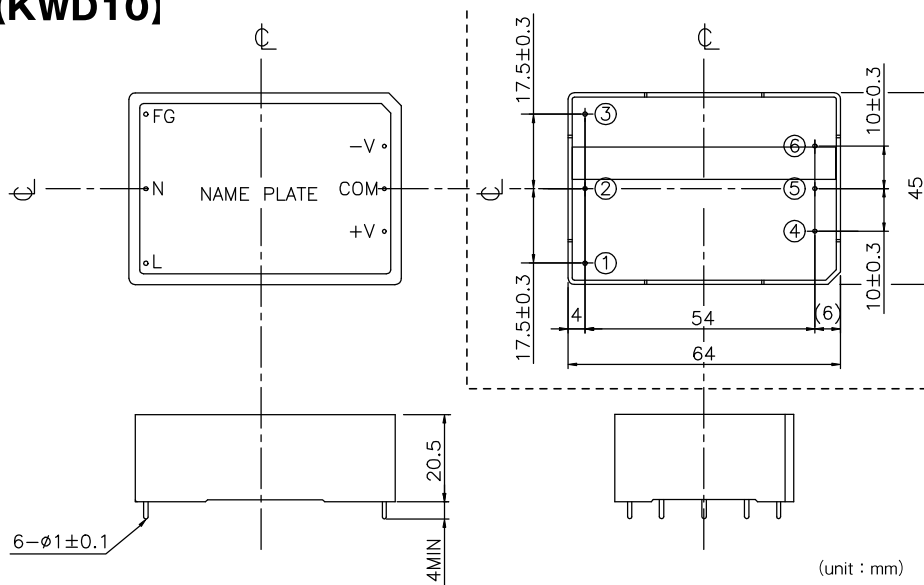
- ①...FG
 - ②...AC (N)
 - ③...AC (L)
 - ④...-V
 - ⑤...COM
 - ⑥...+V
- INPUT
- OUTPUT

*MATERIAL

CASE : PLASTIC (UL94V-0)

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[KWD10]



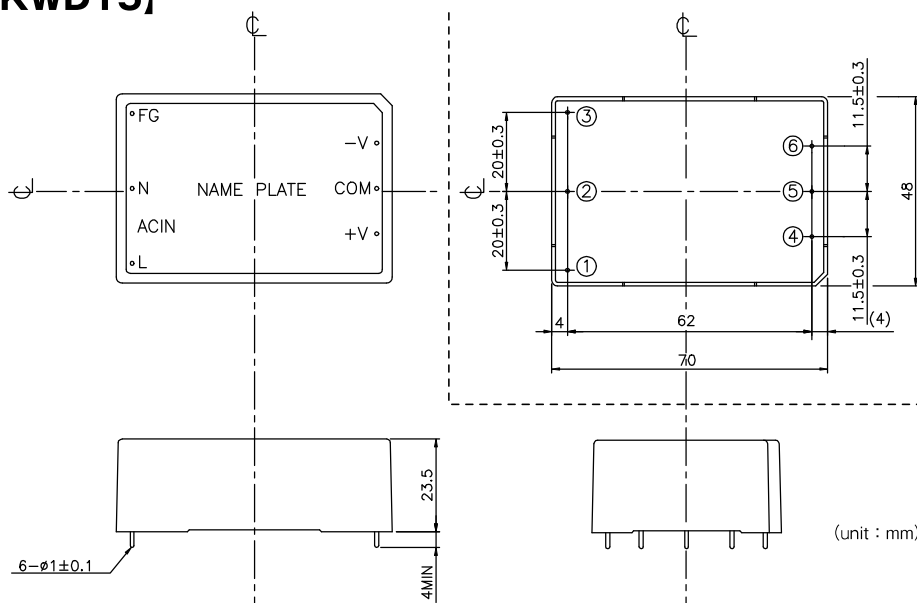
*TERMINAL ASSIGNMRNTS

- ①...FG
 - ②...AC (N)
 - ③...AC (L)
 - ④...-V
 - ⑤...COM
 - ⑥...+V
- INPUT
- OUTPUT

*MATERIAL

CASE : PLASTIC (UL94V-0)

[KWD15]



*TERMINAL ASSIGNMRNTS

- ①...FG
 - ②...AC (N)
 - ③...AC (L)
 - ④...-V
 - ⑤...COM
 - ⑥...+V
- INPUT
- OUTPUT

*MATERIAL

CASE : PLASTIC (UL94V-0)