

FIDES-AC DIMMER FOR LED SMPS

STANDBY ZERO WITH ADVANCED LED DIMMER

PRELIMINARY BRIEF DATA

The FIDES-AC DIMMER are free voltage AC to DC LED SMPS for advanced interactive day light dimming with IEC62301 absolute standby zero system for wireless building managements supports.

The standby zero and advanced interactive dimming are patented and patent pending technology employed for supports all the attractive features of ECO LED lighting products such as reduced ~50% power consumption then ordinary LED lighting.

Low cost, design flexibility, and easy design-in, these parts are targeted to more sophisticated applications and offer several enhanced technology and features, including continuous AC and DC both of input voltage coverage from 80-380V wide ranges and output load up to 1K Watts for flicker less additional PWM dimming driver.

The advanced dimming are surrounding luminosity trace to adapted interactive dimming to actively fitting the ambient.

Also included built-in features likes temp / humidity with light sensor compliant with IEC 61131-9 are direct reading room environments are free to makes smart grid network.

The employed standby zero technology is cost reduced switch wire cable with standby power saving.

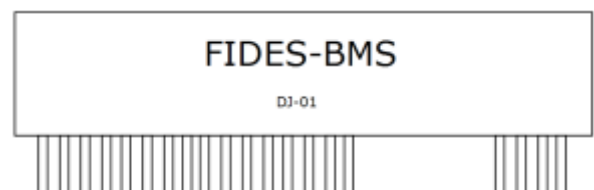
Adapted interactive dimming technology is actively compensation to surround embient light dimming provide ECO lighting environments.

The incorporates a high performance **Ir DJT chain networks** function are realized modern smart grid building managements for LED lighting.

These features simplify the task of the Total Energy Consumption limit to daylight harvesting LED luminare intelligent smart grid building management supports.

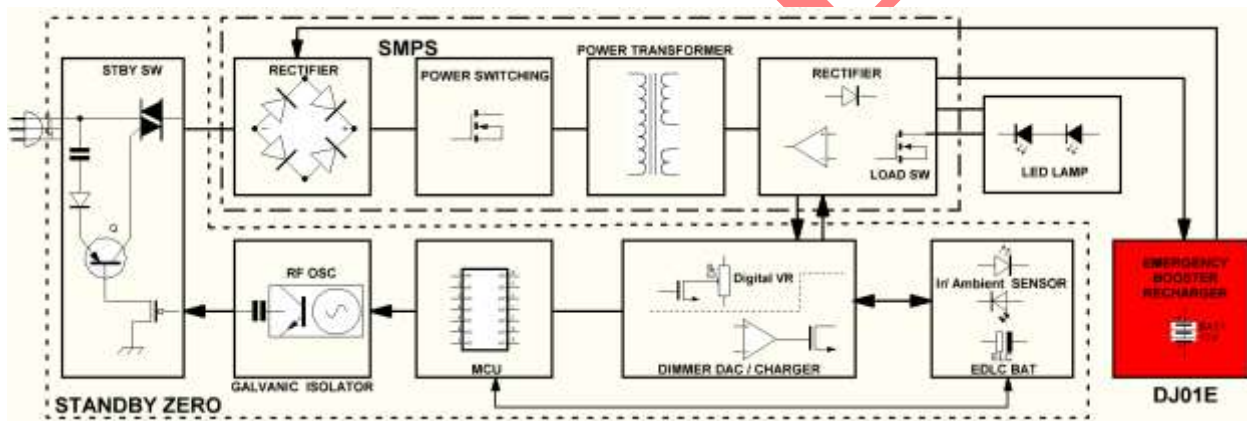
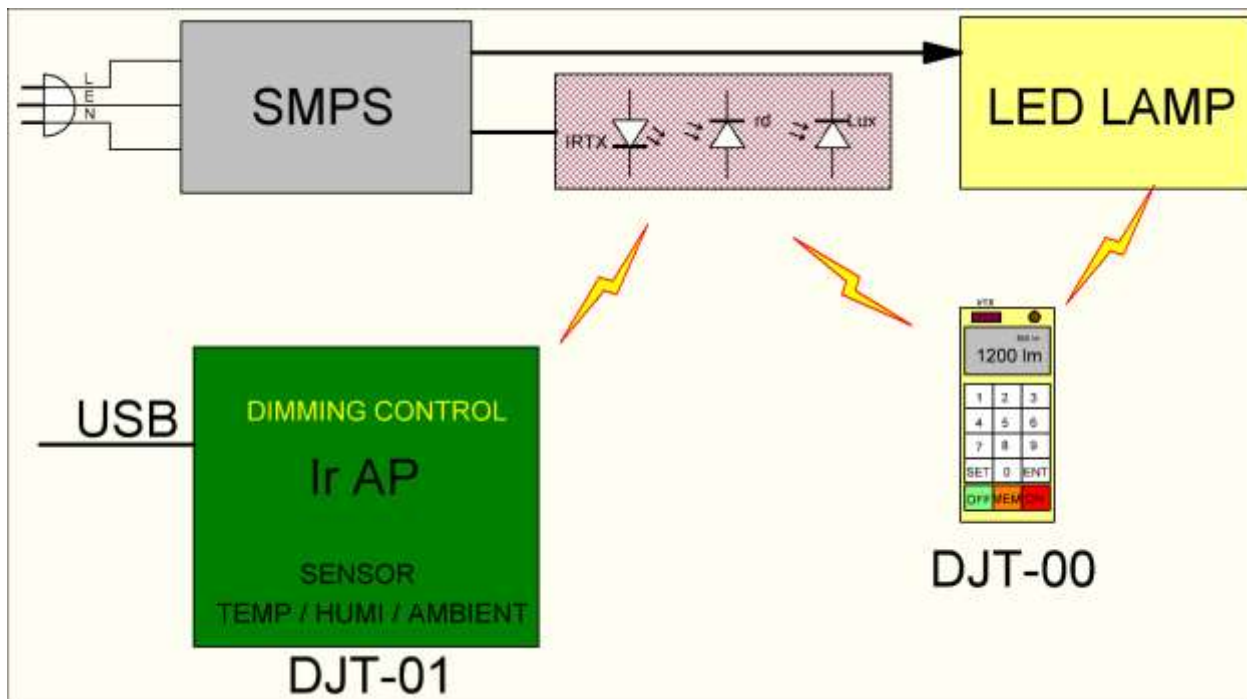
FEATURES

- Free input AC80~380V Range
- IEC62301 Stand by zero support (under 30mW at standby mode)
- Advance interactive daylight dimming
- Full Infrared communication network Dimming support:
- Includes room humidity / temp and luminance sensor Directe reading supports.
- Temperature / Humidity / AC power measurement with On/Off and 5bit Dimming by Ir remote controller and USB local AP server through the internet
- Hybrid network AP supports USB2.0
- Building light management program for Windows 8.1 supports
- IEC 61000-4-2(ESD) EN-55022
- -40°C- +125°C
- 10 year limited warranty.

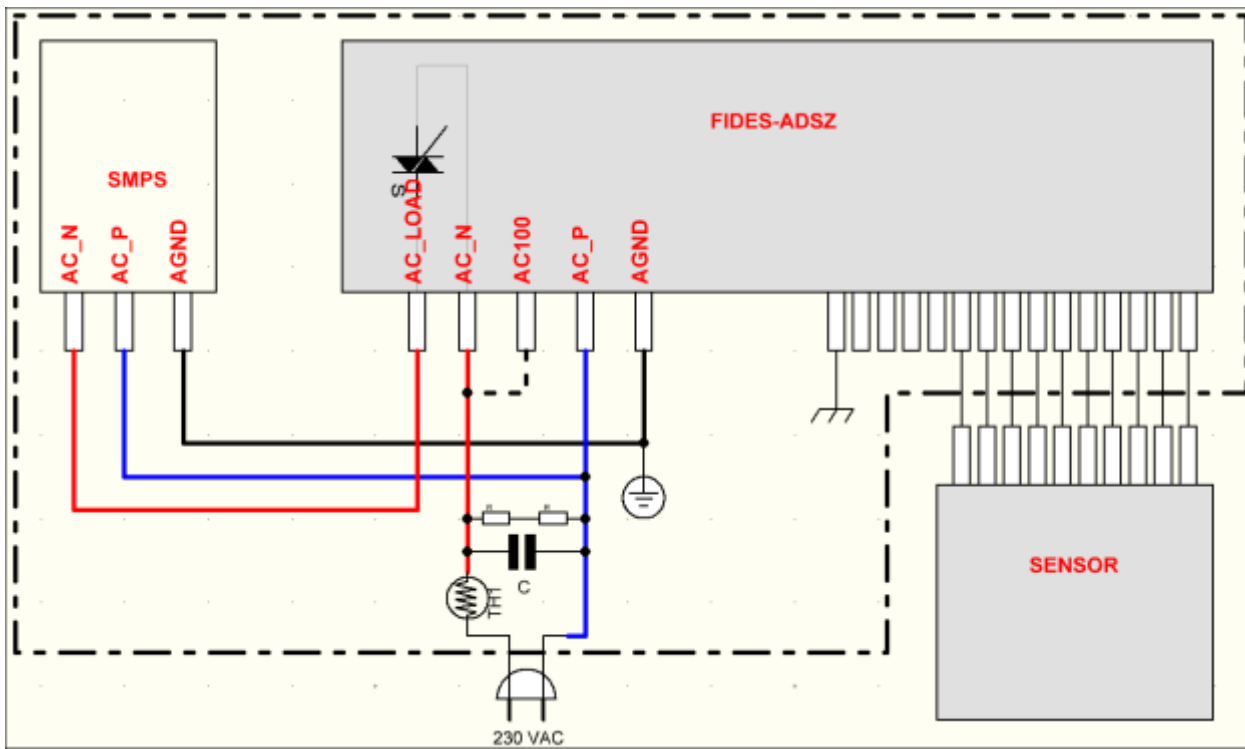


FIDES-ADSZ (140X25X3mm)

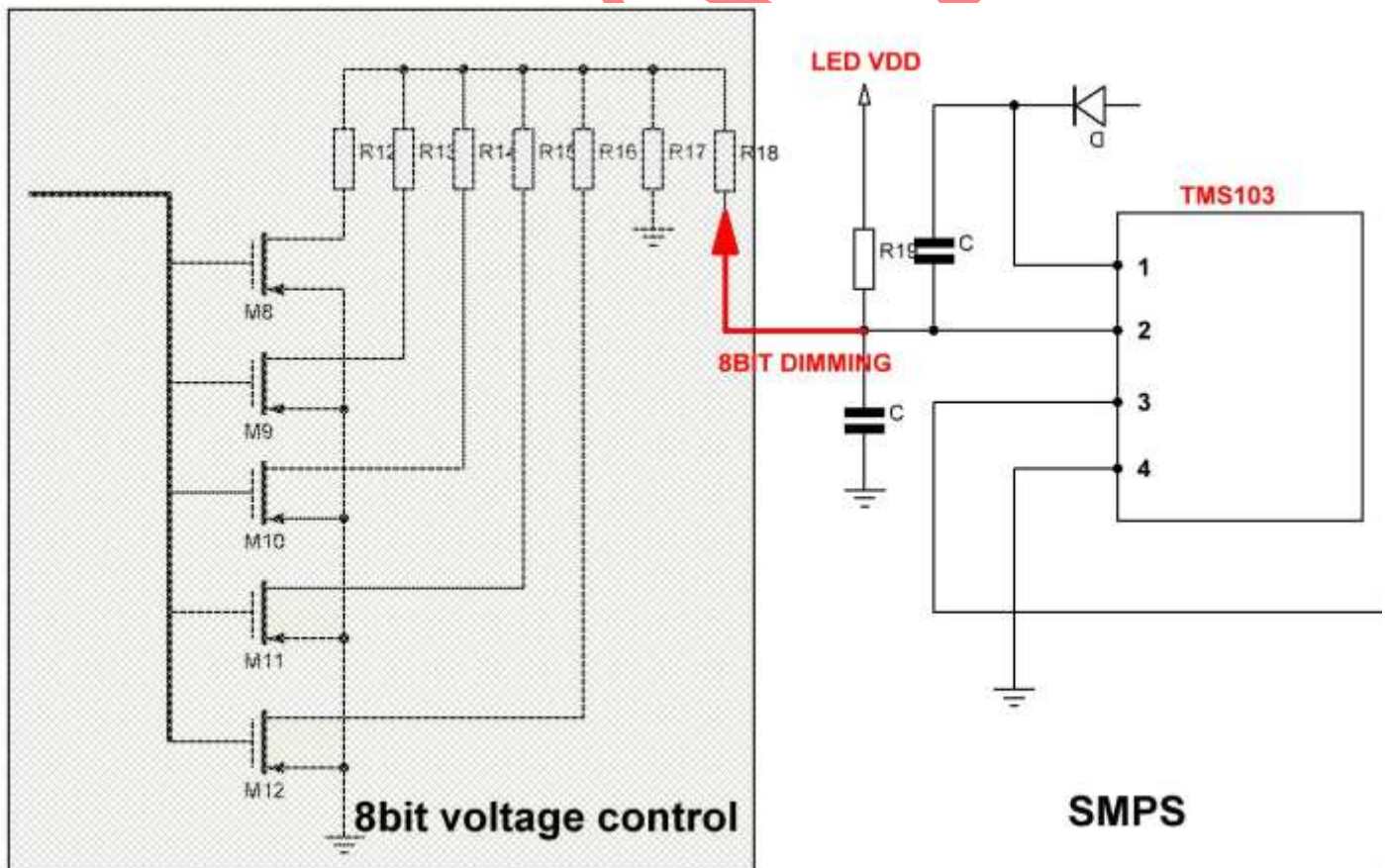
Typical Application Block Circuit



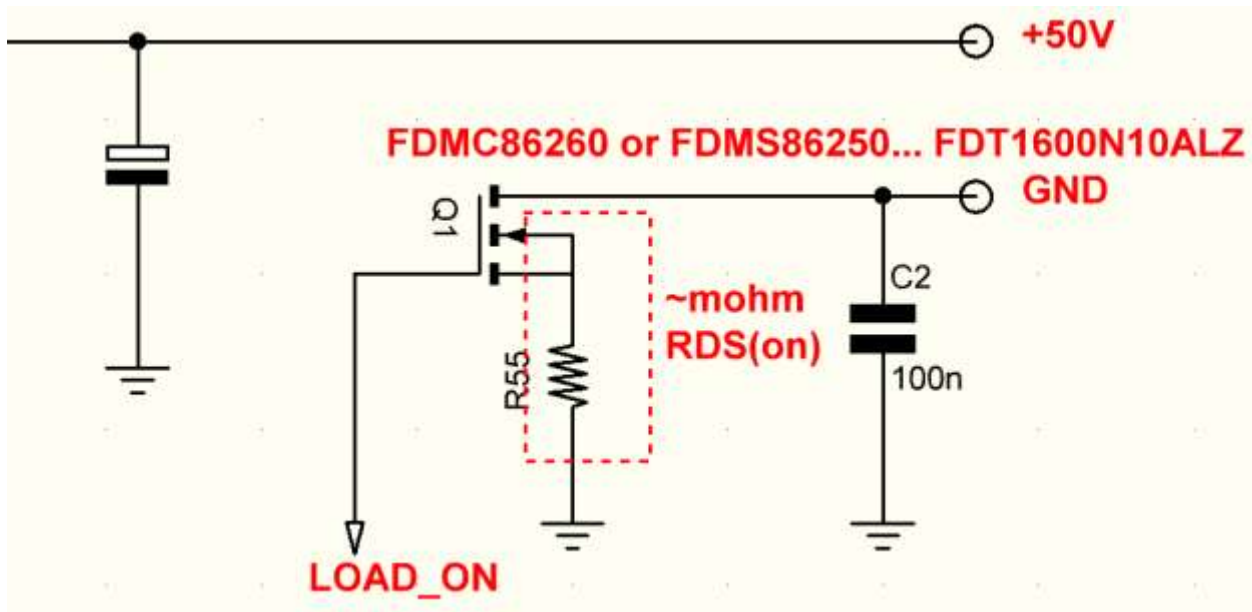
Application circuit to SMPS



Example of voltage control in SMPS comparator



Example of Load_on pin application

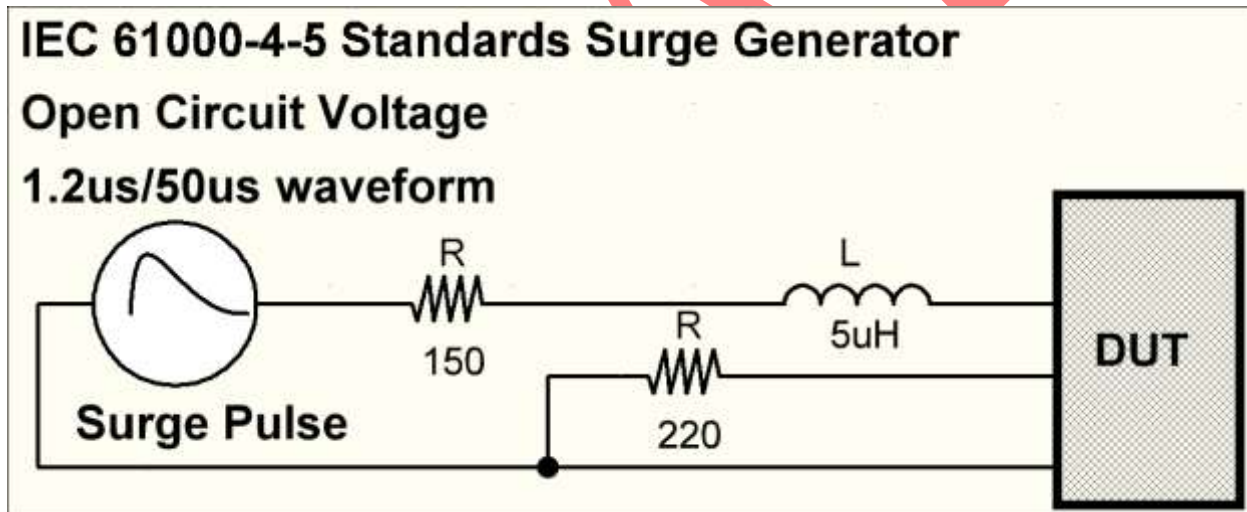


Electrical Characteristics (Test condition: VIN=AC220V/60Hz, Ta=25, unless otherwise specified.)

ESD Ratings: Human Body Model, 3B 8000 V

Machine Model, C 400 V

Recommended Peak Pulse voltage Operating Conditions



Typical Characteristics – Standby power consumption

Typical Characteristics – CC / CV dimming

Typical Characteristics – AC Load

Typical Characteristics – luminance sensor

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Typical Characteristics – Temp / humidity

Typical Characteristics – Ir communication

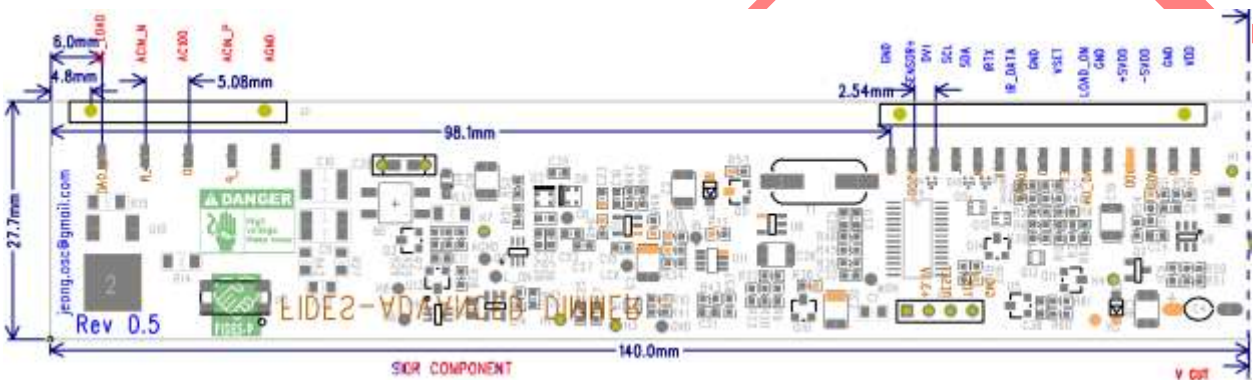
Very wide range and High resolution. (0.008 - 65535 lx)

Package information(size, pin map)

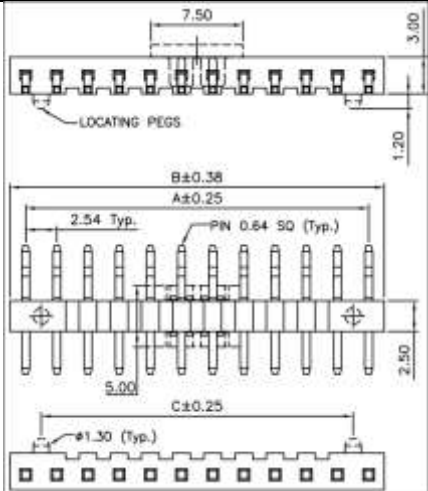
The FIDES-ADSZ is supplied in a RoHS compliant leadless mold package. The package is lead (Pb) free, and used a 'green' compound. The package is fully compliant with European Union directive 2002/95/EC.

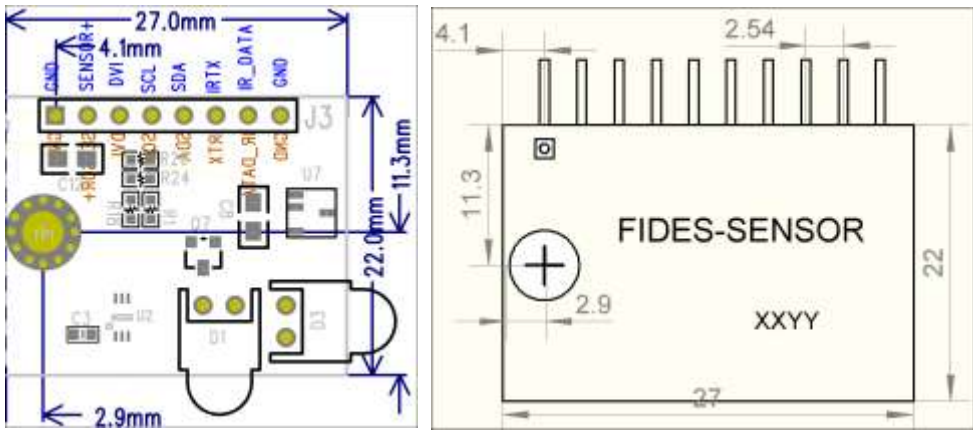
This package is 160mm x 30mm. The solder pads are on a 2.54mm pitch. The above mechanical drawing shows the **DJT-20** package. All dimensions are in millimeters.

The date code format is XXYY where XX = two-digit week number, YY = two-digit year number.



GND		These pin must be 10pin connected with Sensor PCB
SENSOR+		
DVI		
SCL		
SDA		
IRTX		
IR_DATA		
GND		
+SVDD		
-SVDD		

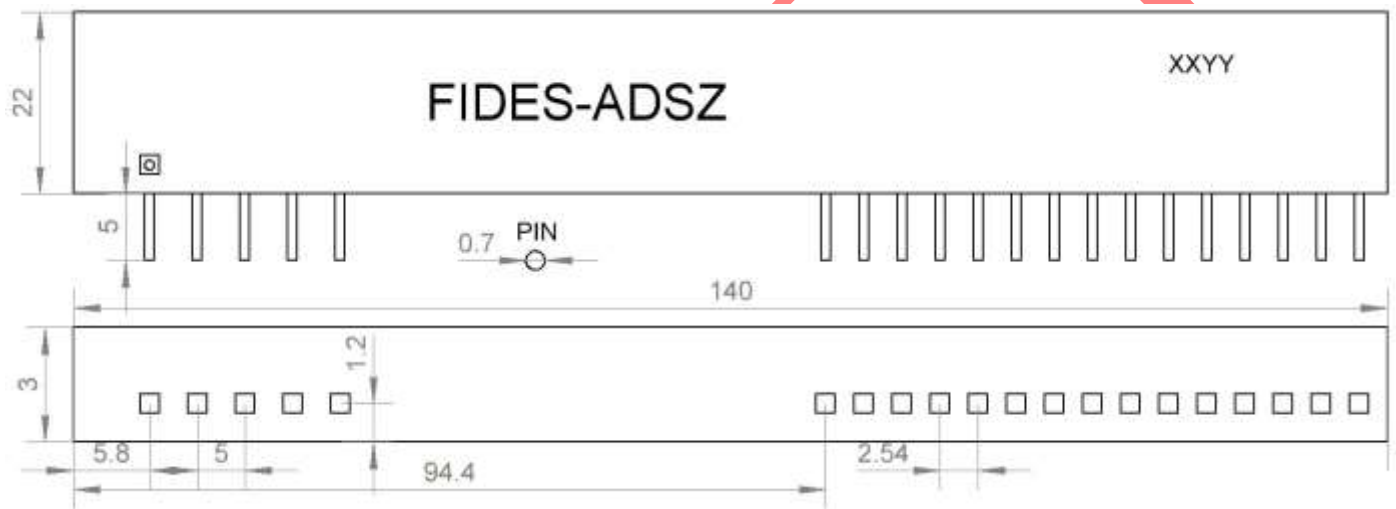




units: mm[inch]

tolerance: $\pm 0.50[\pm 0.020]$

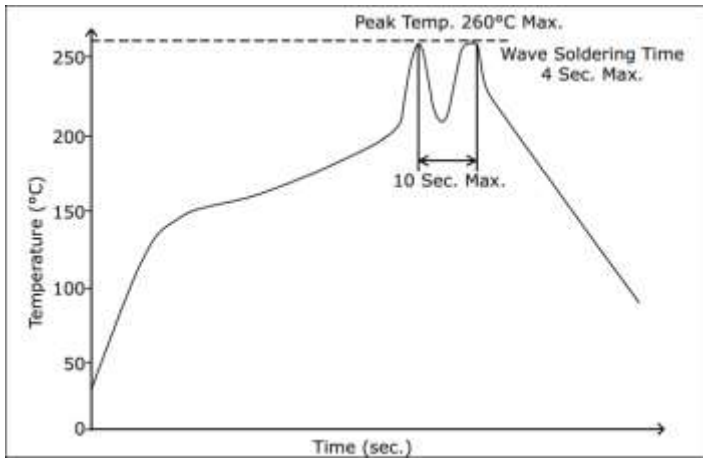
pin section tolerance: $\pm 0.10[\pm 0.004]$



The FIDES-ADSZ is supplied in Pb free DJT-20 package.
The recommended solder reflow profile for package options is show below.

Recommended Soldering Thermal Data

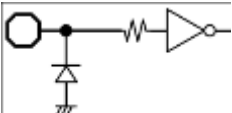
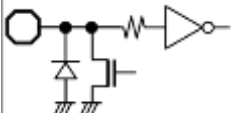
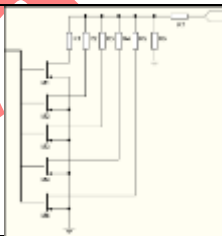
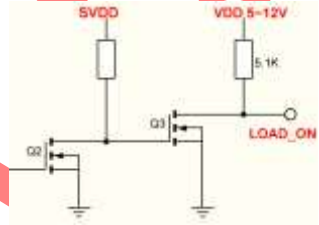
parameter	conditions/description	min	typ	max	units
hand soldering	1.5 mm from case for 10 seconds			300	°C
wave soldering	see wave soldering profile			260	°C



Terminal descriptions

IO: I=input, O=output, B=Bidirectional, - = no connection

Pin #	Pin Name	Description	Circuit (shows Input or output port)	Voltage
	General	Every pins except ground and power supply pins have ESD (Electrical static damage) protection diodes between pin and ground and VDD potential.		
1	AC Load	Output to SMPS AC_N input pin		AC 0 – 380V
2	AC_N Input	AC Power line input range 80~380V		
3	AC_100	When under AC 160V input, needs to connect with AC_N pin.		
4	AC_P	AC input from 80~380V		
5	Earth ground	AC input earth pin.		
6	GND	Digital GND of DC sides.		
7	SENSOR+	Internally controlled +DC power output (Uses to sensor VDD)	(+SVDD-0.65V)	3.4V 50mA max(Hi-Z)
8	DVI	Un synchronized reset		7V

9	SCL	Serial data clock output		1.65V - Vcc
10	SDA	Serial Data IO from external control		
11	IRTX	Ir data transmission.	(Logic Output)	3V
12	IRDATA	Ir data input	(Logic Input)	
13	GND	DC sides GND		0
14	VSET	SMPS voltage reference voltage divide output 8Bit resistor value control. Internal resistor are 1K to 100K by order	(Analog Input ; internal resistor values needs to request) 	Hi-Z DC ~50V Less 10mA
15	LOAD_ON	SMPS low side load On/Off switch, internal pull up resistor value are 5.1K. When recharging mode at standby status, This pin are low. *see the application notes	(Analog Switch) 	DC 5~15V Less 10mA
16	GND	DC sides GND		
17	+SVDD	Regulated 4.2V output. Connect to Li-ion BAT PLUS. I-output <50mA	(Analog Output)	+4.2V
18	-SVDD	Regulated 4.2V output. Connect to Li-ion BAT MINUS. I-output <50mA		4.2V 50mA
19	GND	DC sides GND		
20	VDD	VDD INPUT		12-18V 500mA

Sensor PCB

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Pin #	Pin Name	Description	Circuit (shows Input or output port)	Voltage
1S	GND	DC sides GND		
2S	SENSOR+	Controlled +DC power input (sensor VDD)		
3S	DVI	Un synchronized reset		
4S	SCL	Serial data clock input		
5S	SDA	Serial Data IO from external control		
6S	IRTX	Ir transmit data input		
7S	IRDATA	Ir data output		
8S	GND	DC sides GND		
9S	+SVDD	Regulated 4.2V output. Connect to Li-ion BAT PLUS. I-output <50mA		
10S	-SVDD	Regulated 3.6V output. Connect to Li-ion BAT MINUS. I-output <50mA		

Unless otherwise specified, VDD=5V and Ta=25℃

Absolute Maximum Ratings

Item	Symbol	Parameter	min	typ	max	unit	Condition
Rated Voltage Range	VDD		4.5	5.0	5.5	V	Max V =6.0V
Junction Temperature	Tj		-40	25	125	℃	
Logic Low input V	ViL	AD0, AD1, ISS, SBP, RW, CK, DA, REGSEL, OINV	0		0.2VREF	V	
Logic High input V	ViH		0.8VREF		VREF	V	
Logic Low output V	VoL	DA Terminal	0		0.2VREF	V	
Logic High output V	VoH		0.8VREF		VREF	V	
Low Level output I	IoL				-1	mA	
High Level output I	IoH		1			mA	
Switch Clock Freq	FCLK			200		KHz	
Dimmer range	DIM		1		255		
Drive current	I_DRV	LD0-2、SW0,1,2,3 Terminal	40			mA	
Regulator output	VREF	VREF0 Terminal	2.95	3.0	3.05	V	
Max AC detection voltage	V_AC	VDT Terminal	0		VDD	V	

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LEDstage divide V	V_LEDD	VS0, VS1	0.1		VDD	V	
Luminance sense	VL	PS Terminal	0.15		1.5	V	
LED 電流検出 Threshold	VTHIS	ISO Terminal				V	Compare with saw
Power consupion					4.5	mA	
ESD		ESD Capability, Human Body Model ESD Capacity, Charged Device Model			5	V	

Notes:

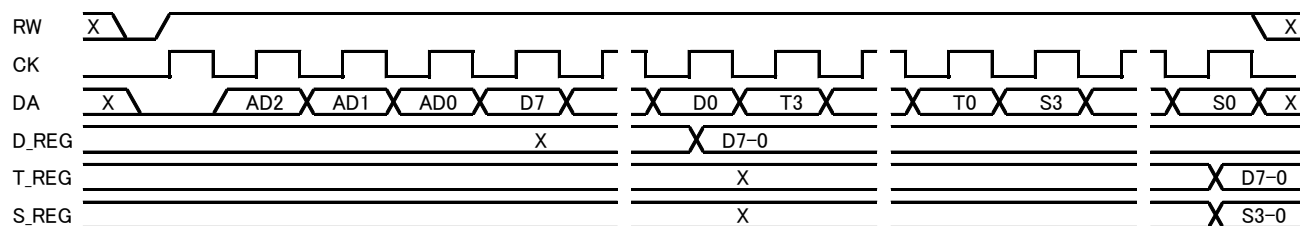
1. Stresses beyond those listed under Absolute Maximum Ratings may cause permanent damage to the device.
2. All voltage values, except differential voltages, are given with respect to GND pin.

SPI interface timing

Host MPU to P1 data write.

P1 send the data to host MPU.

Write timing



D7-0 : Dimming data (Write)

AD2_0 : Chip address data (0-7)

D_REG : dimming data (resistor output)

T_REG : test data (register output); Select the test monitor output

S_REG : test data (register output);

S<1>=0 → PS data enable S<1>=1 → Dimmer data change by register

S<3>=0 → Test output S<3>=1 → Test 2 output

P1 will be edge detection from CK and ignored first data.

Read timing

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