

## FEATURES

### 1. High-speed switching

Since release time is 0.1 ms, the MOSFET or other load can be turned off quickly in urgent situations.

### 2. Space saving

With a built-in control circuit, an external resistor is not needed. This contributes to making substrates more compact.

### 3. High insulation

DIP type: 5,000 V

SOP type: 2,500 V

SSOP type: 1,500 V

### 4. Extensive product lineup

Products include the industry's smallest SSOP type, SOP4 type, and DIP 6 type.

## TYPICAL APPLICATIONS

### MOSFET driver

Power supply (V<sub>cc</sub>) for electronic circuits

## TYPES

Type	Output rating		Part No.				Packing quantity	
	Drop-out voltage (Typ.)	Short circuit current (Typ.)	Through hole terminal	Surface-mount terminal			Tube	Tape and reel
			Tube packing style	Tube packing style	Tape and reel packing style			
					Picked from 1/2/3-pin side*1	Picked from 4/5/6-pin side*2		
DIP6pin	8.7V	14μA	APV1122	APV1122A	APV1122AX	APV1122AZ	1 tube contains 50 pcs. 1 batch contains 500 pcs.	
SOP4pin	8.7V	14μA	—	—	APV1121SX	APV1121SZ		1,000 pcs.
SOP4pin*3	8.2V	8μA	—	—	APV2121SX	APV2121SZ		
SSOP*4	8.2V	8μA	—	—	APV2111VY	APV2111VW		3,500 pcs.

Notes: \*1 SOP type is picked from 1/2-pin side, SSOP type is picked from 1/4-pin side

\*2 SOP type is picked from 3/4-pin side, SSOP type is picked from 2/3-pin side

\*3 Tape package is the standard packing style. Also available in tube.

(Part No. suffix "X" or "Y" is not needed when ordering; Tube: 100 pcs.; Case: 2,000 pcs.)

For space reasons, the initial letters of the product number "AP" and "S" are omitted on the product seal.

The package type indicator "X" and "Z" are omitted from the seal. (Ex. the label for product number APV1121SX is V1121).

\*4 Tape package is the standard packing style.

For space reasons, the initial letters of the product number "AP" and "V" are omitted on the product seal.

The package type indicator "Y" and "W" are omitted from the seal. (Ex. the label for product number APV2111VY is V2111).

## RATING

### 1. Absolute maximum ratings (Ambient temperature: 25°C 77°F)

Item		Symbol	APV1122(A)	APV1121S	APV2121S	APV2111V	Remarks
Input	LED forward current	I <sub>F</sub>	50mA				
	LED reverse voltage	V <sub>R</sub>	5V				
	Peak forward current	I <sub>FP</sub>	1A				f = 100 Hz, Duty Ratio = 0.1%
	Power dissipation	P <sub>in</sub>	75mA				
I/O isolation voltage		V <sub>iso</sub>	5,000V AC	2,500V AC	2,500V AC	1,500V AC	
Temperature limits	Operating	T <sub>opr</sub>	-40°C to +85°C -40°F to +185°F				Non-condensing at low temperatures
	Storage	T <sub>stg</sub>	-40°C to +100°C -40°F to +212°F				

# PHOTOVOLTAIC MOSFET DRIVER (APV1,2)

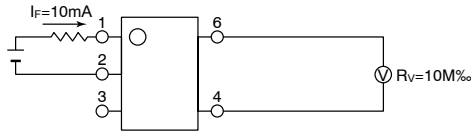
## 2. Electrical characteristics (Ambient temperature: 25°C 77°F)

Item		Symbol	APV1122(A)	APV1121S	APV2121S	APV2111V	Condition
Input	LED operate current	Typical	0.6mA		0.85mA		$V_{oc} = 5V$
		Maximum	3mA				
	LED turn off current	Minimum	0.2mA				$V_{oc} = 1V$
		Typical	0.5mA		0.75mA		
LED dropout voltage	Typical	1.15V				$I_F = 10mA$	
	Maximum	1.5V					
Output	Drop-out voltage*	Minimum	6V		5V		$I_F = 10mA$ $R_v = 10\mu\Omega$
		Typical	8.7V		8.2V		
	Short circuit current**	Minimum	5 $\mu A$		3 $\mu A$		$I_F = 10mA$ $R_v = 100\Omega$
		Typical	14 $\mu A$		8 $\mu A$		
Transfer characteristics	Turn on time***	Typical	0.4ms		0.8ms		$I_F = 10mA$ , $C_L = 1,000pF$
	Turn off time***	Typical	0.1ms				
	I/O capacitance	Typical	0.8pF				$V_B = 0V$ , $f = 1MHz$
		Maximum	1.5pF				
Initial I/O isolation resistance	Minimum	1,000M $\Omega$				500V DC	

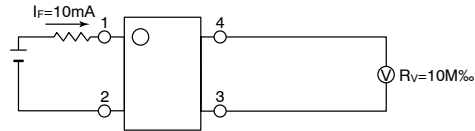
Note: Recommended LED forward current  $I_{F_T}$ : 10mA.

### \*Drop-out voltage measurement circuit

APV1122(A)

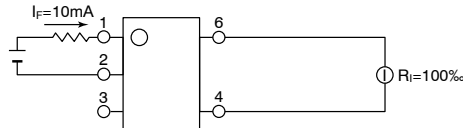


APV1121S, APV2121S, APV2111V

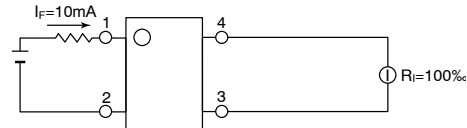


### \*\*Short circuit current measurement circuit

APV1122(A)

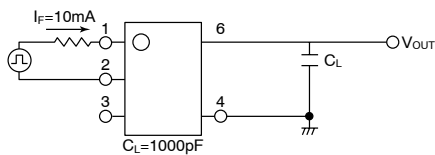


APV1121S, APV2121S, APV2111V

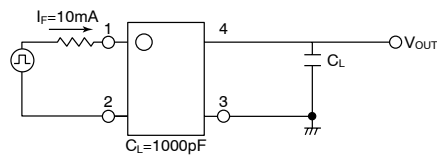


### \*\*\*Turn on/Turn off time measurement circuit

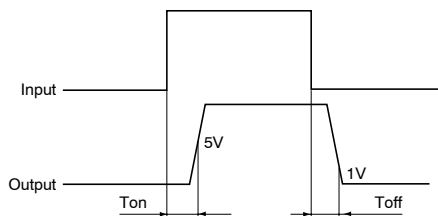
APV1122(A)



APV1121S, APV2121S, APV2111V



### \*\*\*Turn on time



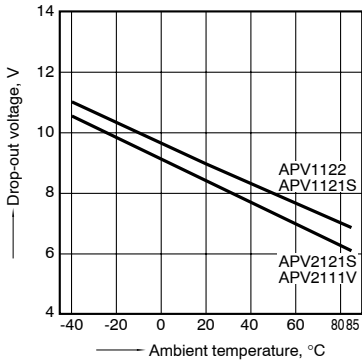
- For Dimensions, see catalog.
- For Schematic and Wiring Diagrams, see catalog.
- For Cautions for Use, see catalog.

# PHOTOVOLTAIC MOSFET DRIVER (APV1,2)

## REFERENCE DATA

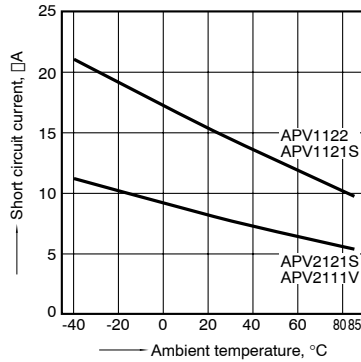
1. Drop-out voltage vs. ambient temperature characteristics

Input current: 10mA



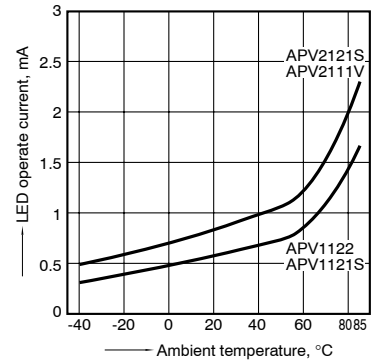
2. Short circuit current vs. ambient temperature characteristics

Input current: 10mA



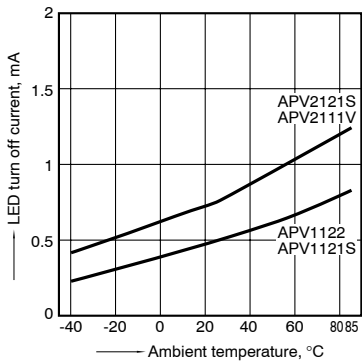
3. LED operate current vs. ambient temperature characteristics

Drop-out voltage: 5V



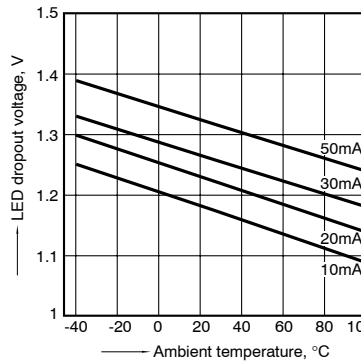
4. LED turn off current vs. ambient temperature characteristics

Drop-out voltage: 1V



5. LED dropout voltage vs. ambient temperature characteristics

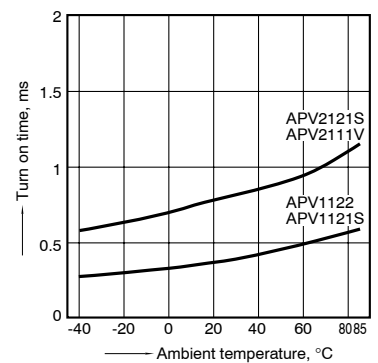
LED forward current: 5 to 50mA



6. Turn on time vs. ambient temperature characteristics

LED forward current: 10mA

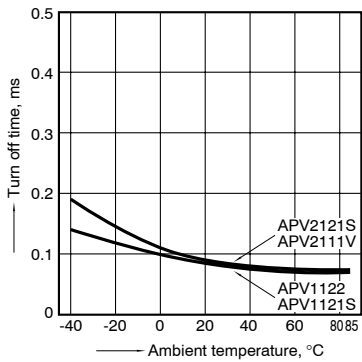
Load capacity: 1,000pF; output voltage: 5V



7. Turn off time vs. ambient temperature characteristics

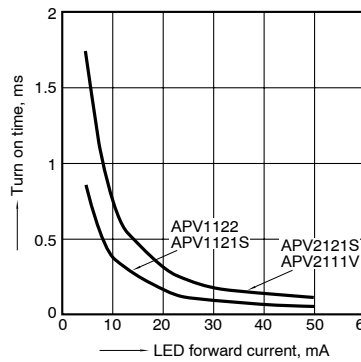
LED forward current: 10mA

Load capacity: 1,000pF; output voltage: 1V



8. Turn on time vs. LED forward current characteristics

Load capacity: 1,000pF; output voltage: 5V



9. Turn off time vs. LED forward current characteristics

Load capacity: 1,000pF; output voltage: 1V

