

DC-DC Converter Short Form

MPDTY31*S (Low profile / Wide output range / 16A output POL)

■ Features

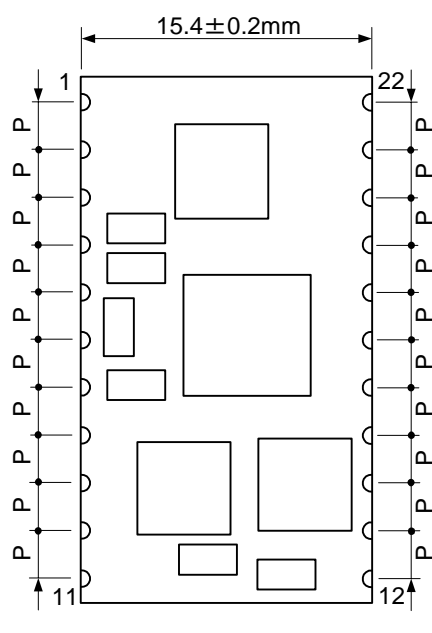
- Low profile ($H < 4.2\text{mm}$) surface mount
- No adhesive is needed to mount on the reverse side of the user board
- No external output capacitor is needed
- Wide operational temperature (-40°C to $+85^{\circ}\text{C}$)
- High efficiency up to 94%
- ON/OFF control function
- Over-current / Over-temperature protection



■ GENERAL SPECIFICATIONS ($T_a = -40^{\circ}\text{C}$ to $+85^{\circ}\text{C}$)

Item	Symbol	Condition	MIN.	TYP.	MAX.	UNIT
Input Voltage	V_{in}	MPDTY311S	4.5	5.0	5.5	V
		MPDTY312S	3.0	3.3	3.6	
Output Voltage	V_{out}	MPDTY311S	0.8	-	3.3	V
		MPDTY312S	0.8	-	2.5	
Output Current	I_{out}	See Thermal Derating Curve	0	-	16	A
Ripple Voltage	V_{rip}	BW=20MHz, Over V_o , I_o range	-	15	50	mVpp
Efficiency	EFF	$V_{in} = 3.3\text{V}$, $V_{out} = 2.5\text{V}$, $I_{out} = 10\text{A}$, $T_a = 25^{\circ}\text{C}$	-	94	-	%

■ DIMENSIONS PIN DESCRIPTIONS



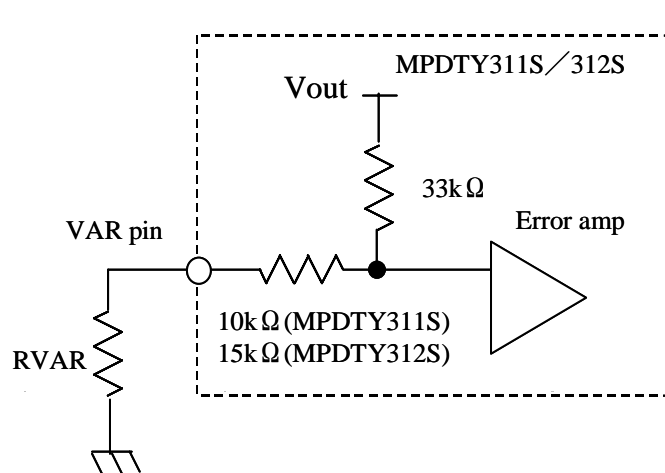
Pin No	Symbol	Function
1,2,3,4,5	V_{out}	Voltage Output
6,7,8,9,10,18,19,20,21	GND	GND
11	VAR	Output Voltage Adjustment
12	ON/OFF	Remote ON/OFF
13,14,15,16,17	V_{in}	Voltage Input
22	N.C.	N.C.

$P = 2.54 \pm 0.2\text{mm}$
Tolerance is not accumulated.

⚠ Note:

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2. This datasheet has only typical specifications because there is no space for detailed specifications. Therefore, please approve our product specifications or transact the approval sheet for product specifications before ordering.

■ OUTPUT VOLTAGE ADJUSTMENT



MPDTY311S

$$RVAR = \frac{26.4}{V_{\text{adj}}[\text{V}] - 0.8[\text{V}]} - 10[\text{k}\Omega]$$

MPDTY312S

$$RVAR = \frac{26.4}{V_{\text{adj}}[\text{V}] - 0.8[\text{V}]} - 15[\text{k}\Omega]$$

<RTRIM CALCULATION EXAMPLE> MPDTY311S

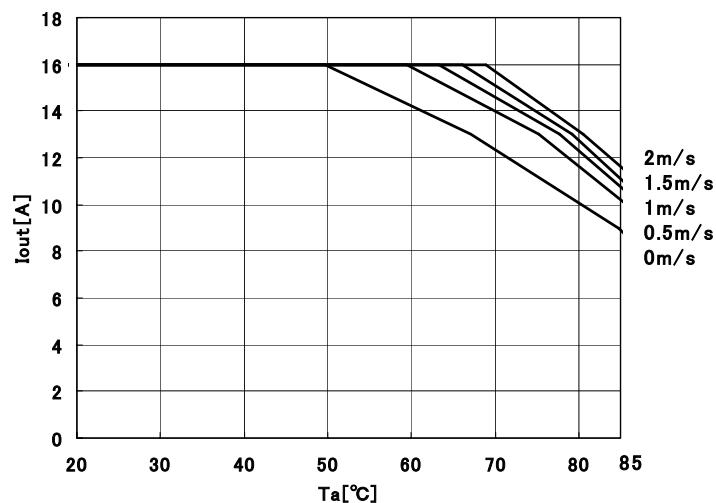
V _{adj} [V]	Calculated RVAR [ohm]	RVAR example [ohm]
3.3	560	560
2.5	5529.4	5.1k + 430 Ω
2	12000	12k
1.8	16400	16k + 390 Ω
1.5	27714.3	27k + 680 Ω
1.2	56000	56k
1	122000	120k + 2k
0.8	∞	Open

MPDTY312S

V _{adj} [V]	Calculated RVAR [ohm]	RVAR example [ohm]
2.5	529.4	510
2	7000	6.8k + 200 Ω
1.8	11400	11k + 390 Ω
1.5	22714	22k + 680 Ω
1.2	51000	51k
1	117000	100k + 18k
0.8	∞	Open

■ OUTPUT VOLTAGE ADJUSTMENT

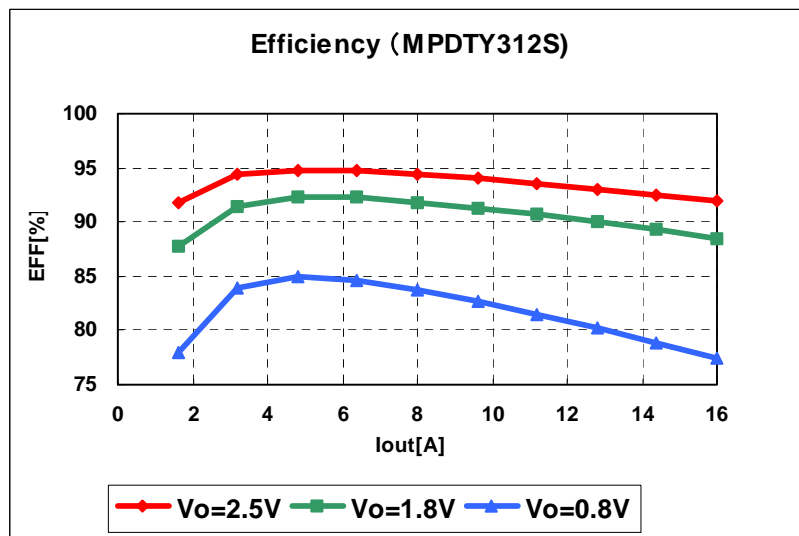
Thermal Derating (MPDTY312S)



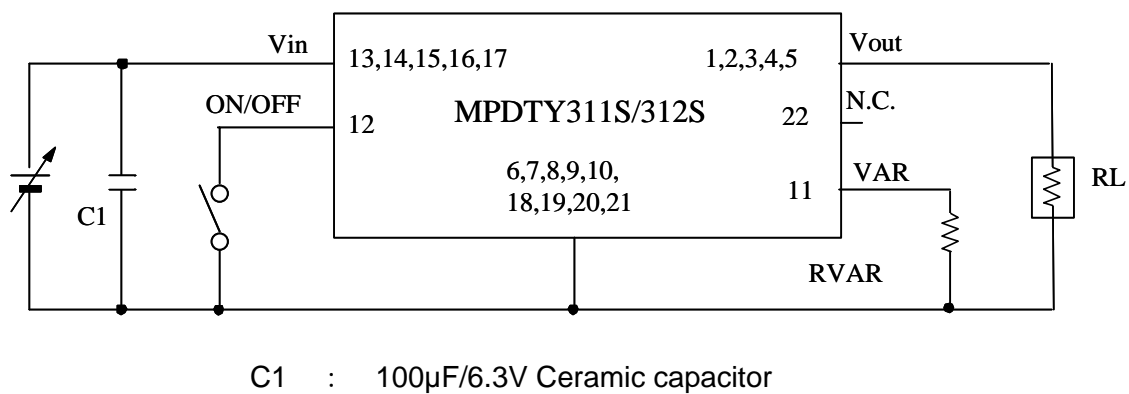
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■ EFFICIENCY



■ TEST CIRCUIT



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