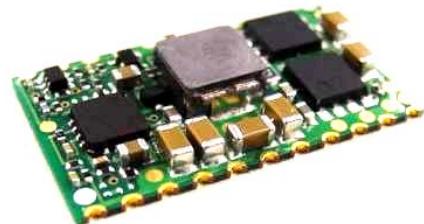


DC-DC Converter Short Form

MPDRX312S (Ultra High Speed Response POL)

■ Features

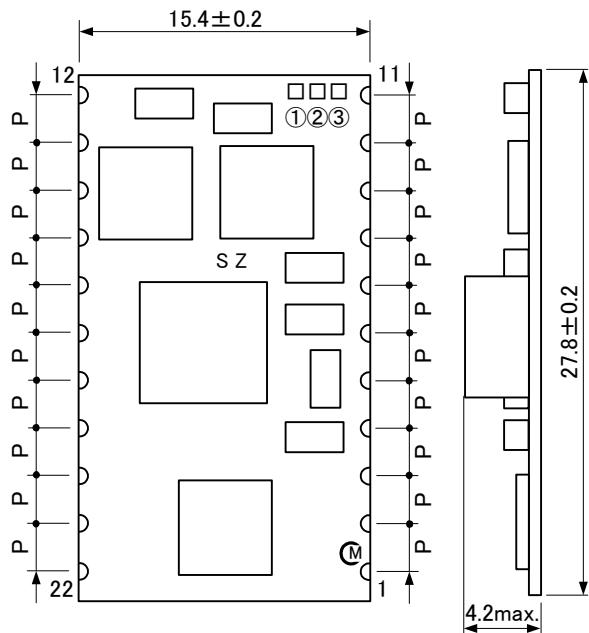
- Ultra High Speed Response
- Low profile (H<4.2mm) surface mount
- No adhesive is needed to mount on the reverse side of the user board
- Wide operational temperature (-40°C to +85°C)
- ON/OFF control function
- Over-current / Over-temperature protection



■ GENERAL SPECIFICATIONS (Ta=25°C)

| Item | Symbol | Condition | MIN. | TYP. | MAX. | UNIT |
|----------------|--------|-----------------------------------------|------|------|------|------|
| Input voltage | Vin | | 3.0 | 5.0 | 5.5 | V |
| Output voltage | Vout | F.T. pin = open | 0.8 | - | 0.9 | V |
| | | F.T. pin = short to GND | 0.9 | - | 1.8 | V |
| Output current | Iout | See thermal derating curve | 0 | - | 16 | A |
| Ripple voltage | Vrip | BW=20MHz, Cout=100μF | - | 15 | 100 | mVpp |
| Efficiency | EFF | Vin=3.3V, Vout=1.8V, Iout=16A, Ta=25 °C | - | 86.5 | - | % |

■ DIMENSIONS AND PIN ASSIGN



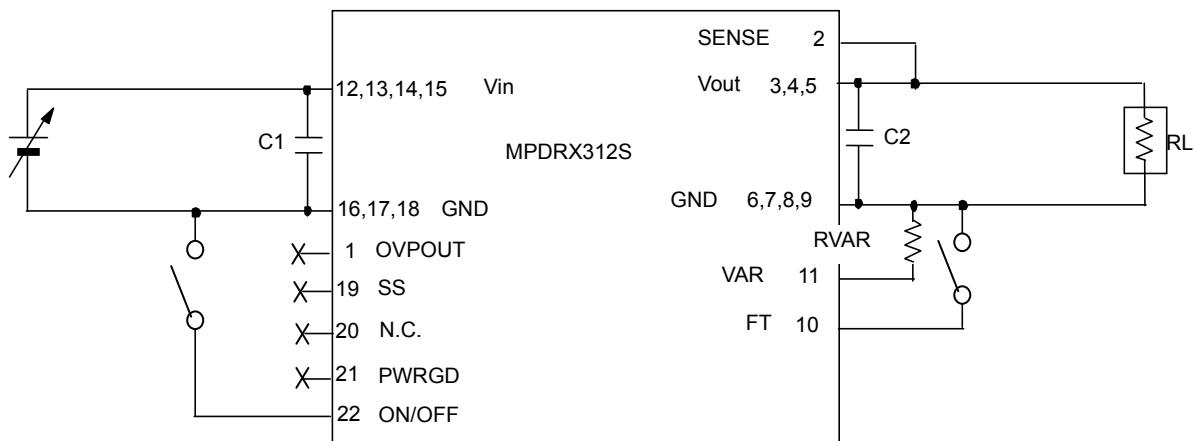
| Pin No. | Symbol | Function |
|------------------|---------|---------------------------|
| 2 | SENSE | Output voltage sense |
| 3,4,5 | Vout | Output |
| 6,7,8,9,16,17,18 | GND | GND |
| 10 | FT | Output trim |
| 11 | VAR | Output voltage adjustment |
| 12,13,14,15 | Vin | Input |
| 1 | OVPOUT | Output Over-voltage Alarm |
| 19 | SS | Soft Start |
| 20 | N.C. | |
| 21 | PWRGOOD | Power Good |
| 22 | ON/OFF | Remote ON/OFF |

P=2.54 ± 0.2mm
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.

■ TEST CIRCUIT

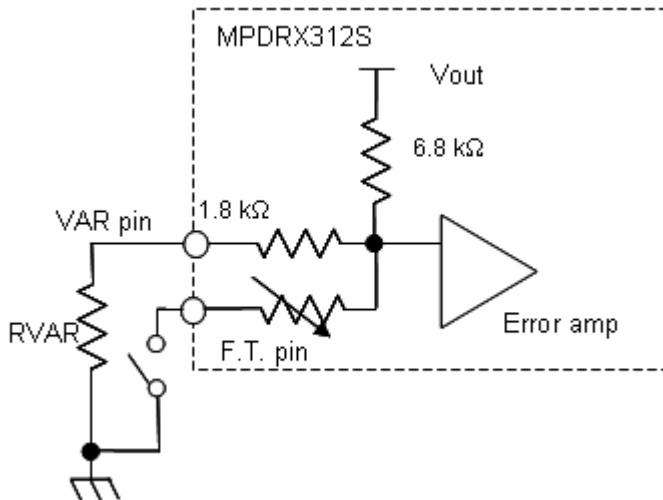


C1 : 100μF/6.3V Ceramic capacitor

C2 : 100μF/6.3V Ceramic capacitor

■ OUTPUT VOLTAGE ADJUSTMENT

(a) $0.8 \leq V_{out} < 0.9V$ (FT : OPEN)



$$RVAR = \frac{5440}{V_{adj}[V] - 0.8[V]} - 1800 \quad [\Omega]$$

(b) $0.9 \leq V_{out} \leq 1.8V$ (FT : SHORT to GND)

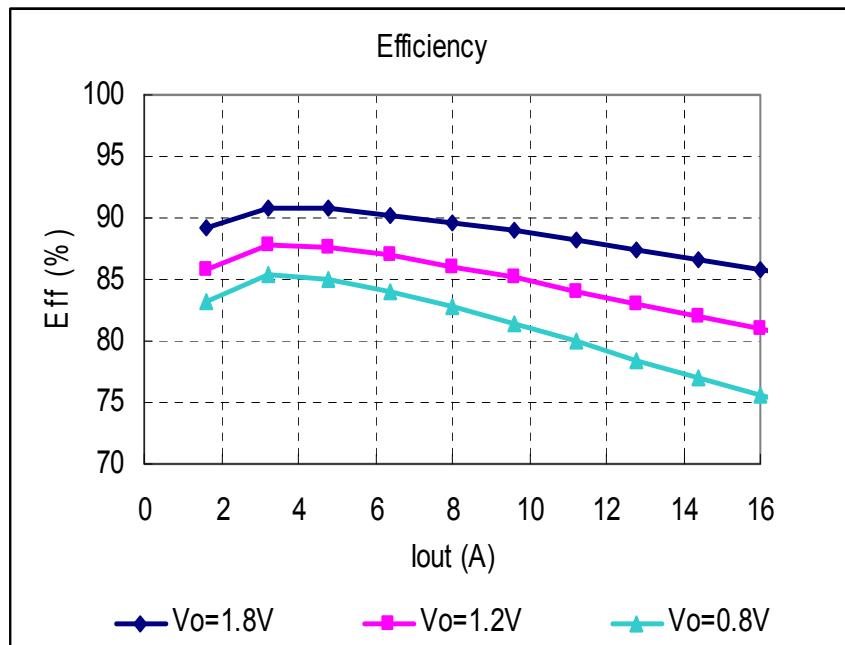
$$RVAR = \frac{5440}{V_{adj}[V] - 0.9[V]} - 1800 \quad [\Omega]$$

| V _{adj} [V] | Calculated RVAR [Ω] | RVAR example [Ω] | F.T. pin |
|----------------------|---------------------|------------------|--------------|
| 1.8 | 4240 | 3.9k+330 | Short to GND |
| 1.5 | 7270 | 6.8k+470 | Short to GND |
| 1.2 | 16330 | 16k+330 | Short to GND |
| 1.0 | 52600 | 47k+5.6k | Short to GND |
| 0.9 | ∞ | Open | Short to GND |
| 0.8 | ∞ | Open | Open |

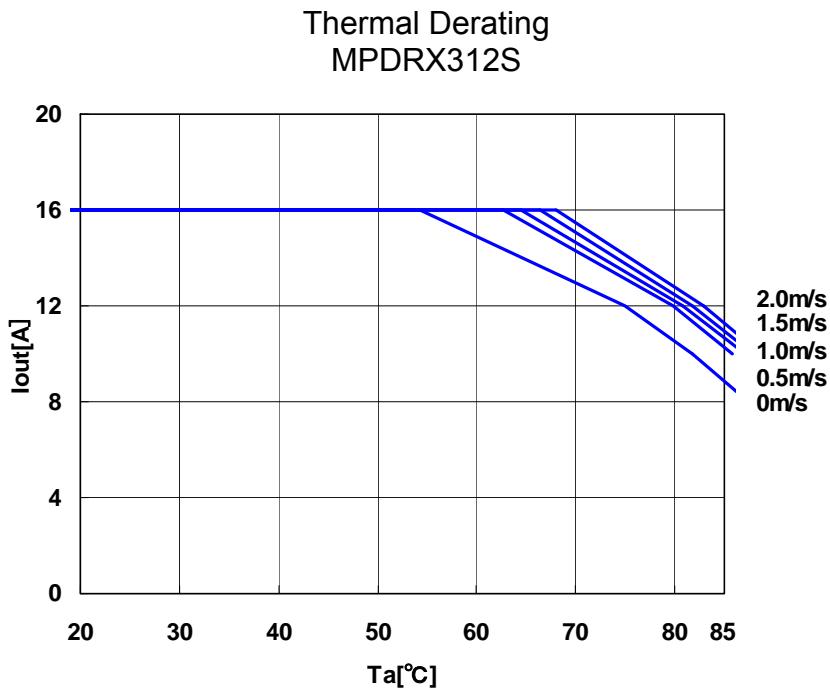
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■ EFFICIENCY CHARACTERISTICS



■ THERMAL DERATING



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