

0 to 19V/300mA Output

Broad output DC/DC Converter(Non-isolated)

BP5811

Absolute Maximum Ratings

| Parameter | Symbol | Limits | Unit |
|------------------------------|-------------|------------|------|
| Motor driving supply voltage | V_{Min} | 25 | V |
| CTL input voltage | V_{CTL} | 0.3 to 5.5 | V |
| Maximum output current | I_{Opeak} | 300 | mA |
| Operating temperature range | T_{opr} | -20 to +80 | °C |
| Storage temperature range | T_{stg} | -30 to +85 | °C |
| Maximum surface temperature | T_{cmax} | 100 | °C |

Recommended Action Conditions

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|------------------------------|-----------|------|------|------|------|-------------|
| Motor driving supply voltage | V_{MIN} | 19.0 | 20.0 | 21.0 | V | $I_O=300mA$ |
| CTL input voltage | V_{ctl} | 0 | - | 5.0 | V | |
| CTL input frequency | f_{ctl} | 1 | 50 | 100 | kHz | |

Electrical Characteristics

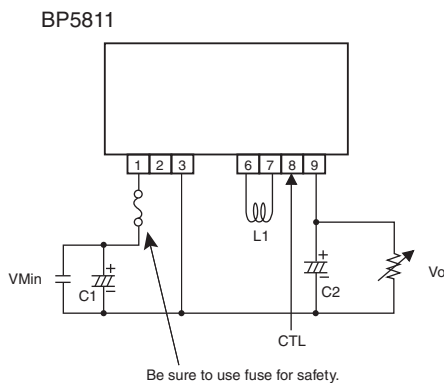
(Unless otherwise specified, $V_{MIN}=20V$, $I_O=300mA$, $V_{CTL}=5.0V$, $T_a=25^\circ C$)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|-----------------------------|--------|------|------|------|------------------|----------------------------|
| Output voltage | V_O | 18.0 | 19.0 | 20.0 | V | |
| | | 14.3 | 15.1 | 15.9 | V | $V_{ctl}=4.0V$ $I_O=240mA$ |
| | | 6.76 | 7.35 | 7.94 | V | $V_{ctl}=2.0V$ $I_O=120mA$ |
| Output current | I_O | - | - | 300 | mA | *1 |
| Output ripple | V_P | - | 0.05 | 0.15 | V _{p-p} | *2 |
| Power conversion efficiency | η | 88 | 93 | - | % | |

*1 Maximum output current is charged due to the output voltage or the ambient temperature.

*2 An output ripple voltage is charged due to smooth capacitor, measurement environment, pattern layout.

Application Circuit

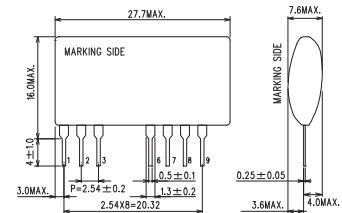


| Pin No. | Function |
|---------|--------------------------|
| 1 | Input terminal |
| 2 | N.C. |
| 3 | GND |
| 4 | Skip |
| 5 | Skip |
| 6 | Coil connection terminal |
| 7 | Coil connection terminal |
| 8 | Control terminal |
| 9 | Output voltage |

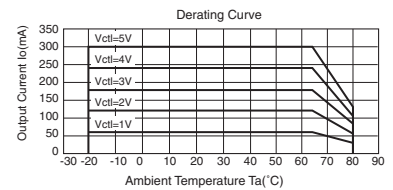
External Component Specifications

| | |
|--------------------------------|--|
| FUSE: Fuse | Use a quick-acting fuse (2.3A) |
| C1: Input smoothing capacitor | 470 μ F/50V Low impedance Recommended part : PM series (Nichicon) |
| C2: Output smoothing capacitor | 470 μ F/50V Low impedance Recommended part : PM series (Nichicon) |
| L1: Power inductor | 47 μ H, Rated current 1.2A or higher Recommended part : TSL0808-470K1R2 (TDK) |

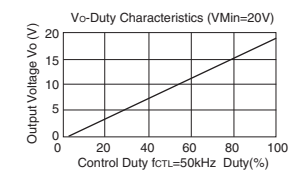
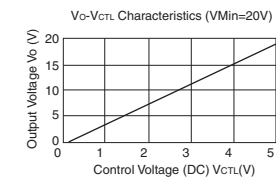
Dimensions (Unit : mm)



Derating Curve



Output Voltage Control Characteristics (Ta=25°C)



Conversion Efficiency (V_Min=20V, V_CTL=5V)

