



Charger Protection IC with Internal FET BD6040GUL

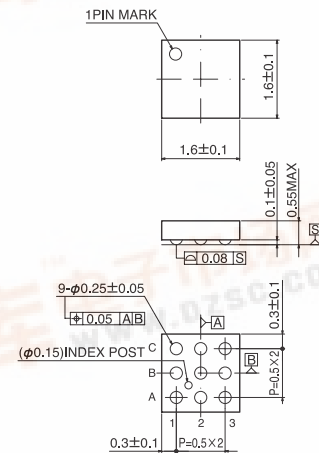
● Outline

The BD6040GUL charger protection IC developed for portable devices provides up to 28V of over voltage protection for charger ICs. Built-in circuits include overvoltage lockout, overcurrent limit, undervoltage protection, internal start up delay, and status flag.

● Features

- 1) 28V (max) overvoltage protection
- 2) Low quiescent current (45μA)
- 3) Low Ron (125mΩ) FET
- 4) Overvoltage lockout (OVLO) circuit
- 5) Undervoltage lockout (UVLO) circuit
- 6) Internal 2msec start up delay
- 7) Overcurrent protection circuit
- 8) Compact package: VCSP50L1 (1.6mm x 1.6mm, t=0.55mm)

● Dimensions (Unit:mm)



VCSP50L1

● Applications

Mobile phones, MP3 players, digital cameras

● Absolute Maximum Ratings (Ta=25°C)

| Parameter | Symbol | Limits | Unit | Conditions |
|-----------------------------|--------|-------------|------|------------|
| Input Supply Voltage 1 | Vmax1 | -0.3 to 30 | V | IN |
| Input Supply Voltage 2 | Vmax2 | -0.3 to 7 | V | other |
| Power Dissipation | Pd | 725 | mW | |
| Operating Temperature Range | Topr | -35 to +85 | °C | |
| Storage Temperature Range | Tstr | -55 to +150 | °C | |

*1: Derated at 5.8mW/ 1°C at Ta greater than 25°C. When mounted on 50mm×58mm board.

- The specifications for the product described in this document are for reference only. Upon actual use, therefore, please request that specifications to be separately delivered.
- The application circuit examples, information, and various data pertaining to the use of the products presented in this documentation are provided for reference purposes only.
- Please note that ROHM cannot bear any responsibility regarding any problems relating to industrial property rights resulting from their use thereof.

The products listed in this catalog are designed to be used with ordinary electronic equipment or devices (such as audio visual equipment, office-automation equipment, communications devices, electrical appliances and electronic toys). Should you intend to use these products with equipment or devices which require an extremely high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), please be sure to consult with our sales representative in advance.

Current specifications in effect of 1st. October 2007.

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Contact us for further information about the products.

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• **Recommended Operating Range** (Ta=25°C unless otherwise noted)

| Parameter | Symbol | Min. | Typ. | Max. | Unit |
|---------------------|--------|------|------|------|------|
| Input Voltage Range | Vin | 2.2 | 5 | 28 | V |

• **Electrical Characteristics** (Ta=25°C unless otherwise noted)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|---------------------------------|--------|------|------|------|------|---------------|
| ELECTRICAL | | | | | | |
| Input Voltage Range | VIN | - | - | 28 | V | |
| Supply Quiescent Current | ICC | - | 45 | 90 | µA | |
| Undervoltage Lockout | UVLO | 2.53 | 2.65 | 2.77 | V | IN=decreasing |
| Undervoltage Lockout Hysteresis | UVLOh | 50 | 100 | 150 | mV | IN=increasing |
| Overvoltage Lockout | OVLO | 6.2 | 6.4 | 6.6 | V | IN=increasing |
| Overvoltage Lockout Hysteresis | OVLOh | 10 | 30 | 50 | mV | IN=decreasing |
| Current Limit | ILM | 1.2 | - | - | A | |
| Vin Vs. Vout Res. | RON | - | 125 | 150 | mΩ | |
| OK Output Low Voltage | OKVO | - | - | 400 | mV | SINK=1mA |
| OK Leakage Current | OKleak | - | - | 1 | µA | |
| EN Input Voltage (H) | ENH | 1.45 | - | - | V | |
| EN Input Voltage (L) | ENL | - | - | 0.5 | V | |
| EN Input Current | ENC | 12 | 25 | 50 | µA | EN=1.5V |
| TIMING | | | | | | |
| Startup Delay | Ton | - | 2 | 4 | ms | |
| OK Rise Delay | Tok | - | 10 | 15 | ms | |
| Output Turn Off Time | Toff | - | 2 | 10 | µs | |
| Alert Delay | Tovp | - | 1.5 | 10 | µs | |

* This product is not designed to be resistant to radiation.

• **Block Diagram**

