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# BTS 500x0-1EGA – smart switches, smart choice



The BTS 500x0-1EGA family consists of single-channel high-side power switches in a green and robust PG-DSO-12-16 package with ON-state resistance ( $R_{DS(on)}$ ) ranging from 5 to 8 mΩ. The devices offer package, pin and functional (protection and diagnostic) compatibility amongst each other with scaling of  $R_{DS(on)}$  and related parameters.

The devices include the Infineon™ ENHANCED SENSE pin IS, which provides a sophisticated diagnostic feedback signal, including current sense functionality, open load in the ON state (via sense signal) and open load and short-to-battery in the OFF state. Diagnostic reporting can be enabled and disabled by the DEN pin in the ON and OFF states. In the OFF state, open load detection can also be disabled by the DEN pin to optimize standby current.

## Key features

- Scalable product family
- Supports 3.3 V and 5 V, ground-referenced CMOS-compatible inputs
- Short-circuit protection with latch
- Thermal shutdown with latch
- Infineon® INTELLIGENT LATCH (resettable latch resulting from protective switchoff)
- ReverSave™ – reverse battery protection without external components by autonomous turn-on of power MOSFET
- Undervoltage shutdown with restart
- Overvoltage protection (including load dump)
- Loss of V<sub>bb</sub> protection (with external diode for charged inductive loads)
- Green and robust (RoHS-compliant in accordance with J-STD-020B)
- Very low standby current
- AEC-qualified with ESD class H1C

## Applications

- Microcontroller-compatible high-side power switch with diagnostic feedback for 12 V system grounded loads
- Very suitable for loads with high inrush currents, such as heating systems (e.g. glow plugs, seat heating elements or PTC auxiliary heating systems) and high current lamps (e.g. HB/LB)
- Relay and fuse replacement in power management modules and junction boxes

## Bts 500x0-1eGA family overview

| Parameter   | Symbol        | BTS 50050-1EGA | BTS 50060-1EGA | BTS 50070-1EGA | BTS 50080-1EGA | Unit |
|---|---------------|----------------|----------------|----------------|----------------|------|
| Typical ON-state resistance<br>$T_j = 25^\circ\text{C}$       | $R_{DS(ON)}$  | 5              | 6              | 7              | 8              | mΩ   |
| Maximum ON-state resistance<br>$T_j = 150^\circ\text{C}$      | $R_{DS(ON)}$  | 10             | 12             | 14             | 16             | mΩ   |
| Nominal load current  | $I_{L(nom)}$  | 16             | 15             | 14             | 13             | A    |
| Maximum Inductive load switch-OFF energy - repetitive pulse - | $E_{AR}$      | 38             | 32             | 27             | 24             | mJ   |
| Maximum Inductive load switch-OFF energy - single pulse -     | $E_{AS}$      | 200            | 170            | 145            | 125            | mJ   |
| Minimum short-circuit shutdown threshold                      | $I_{LSC(Th)}$ | 100            | 100            | 90             | 80             | A    |

## Order number

|                |             |
|----------------|-------------|
| BTS 50050-1EGA | SP000410462 |
| BTS 50060-1EGA | SP000299539 |
| BTS 50070-1EGA | SP000410464 |
| BTS 50080-1EGA | SP000410466 |

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