

## Delphi Inductive Driver Module Controller

### ▶ Description

The Delphi Inductive Driver Module Controller (IDMC) is a four-channel IGBT driver IC designed for 6- and 8-cylinder waste spark automotive ignition system applications. The IDMC turns on the IGBTs to sink coil current during the dwell times requested by the PCM. In the event of a long dwell time, the IDMC will shut down the coil's primary current. Each gate drive output has phased turn-on circuitry to prevent ignition-on-make.

### ▶ Features

- Four IGBT gate drive channels
- Phased turn-on of gate drive outputs
- Dwell timeout
- Dwell input masking after timeout
- Load dump protection

### ▶ Packaging

- Hybrid IC with high temperature solder FOC bumps

### ▶ Typical Applications

- Advanced automotive ignition systems

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Recommended Operating Conditions			
Characteristic	Symbol	Value	Unit
Supply Voltage	VS1	4.5 to 26.5	V
Supply Voltage	VS2	4.5 to 26.5	V
Operating Temperature		-40 to 140	°C

Absolute Maximum Ratings			
Characteristic	Symbol	Value	Unit
Maximum Junction Temperature		165	°C

Electrical Performance Characteristics						
Characteristics	Symbol	Condition	Min	Max	Typ	Unit
Dwell input voltage	Vil	Operating logic levels	0.0	1.3		V
Dwell input voltage high	Vih	Operating logic levels	2.65	5.5		V
Dwell input threshold on	VT(on)		1.7	2.65		V
Dwell input threshold off	VT(off)		1.3	1.9		V
Dwell input hysteresis	Hyst		0.25			V
Gate drive output high voltage	Voh	DWLx =2.65V	2.95	4.1		V
Gate drive output low voltage	Vol	DWLx5.0V, VF =175mV	0.0	1.5		V
Gate drive output low voltage	Vol	DWLx =V, IGD =2.5mA	0.45	1.67		V
Gate drive output impedance	Zout	DWLx =V, IGD =5mA	242	380		Ohms
Dwell timeout time	DTO	B+ < 6.0V	18			ms
Dwell timeout time	DTO	b+ > 6.0V	37.5/(VS1-3.5)			V/ms
Dwell input blinding time	Tblind		100	300		µs