

Delphi Compression Sense Time Out

▶ Description

The Delphi Compression Sense Time Out (CSTO) is a 2-channel, IGBT driver IC designed for 4-cylinder, waste spark, current limited automotive ignition system applications. The CSTO turns on the IGBTs to sink coil current during the dwell times requested by the PCM. Primary coil current is limited via current limit circuitry in the STO. In the event of a long dwell time, the CSTO will perform a soft shutdown of the coil's primary current so that no spark occurs. The CSTO also provides a logic high CAM signal to the PCM when an odd numbered cylinder is under compression and a logic low CAM signal when an even numbered cylinder is under compression.

▶ Features

- 2 IGBT gate drive channels
- Current limit
- Soft shutdown
- Dwell lockout protection
- Compression sense
- 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	VSI	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 Low	Vil	Operating Logic Levels	0.0	1.3		V
Dwell Input Voltage High	Vih	Operating Logic Levels	2.65	20.0		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	2.8	9.0		V
Gate Drive Output Low Voltage	Vol	DWLx=5.0V, VF=175mV	0.0	1.5		V
Gate Drive Output Low Voltage	Vol	DWLx=0V, IGD=2.5mA	0.45	1.67		V
Gate Drive Output Impedance	Zout	DWLx=0V, IGD=5mA	242	380		Ohms
Dwell Timeout Time	DTO	4.8V < B+ < 26.5V	150			ms
Soft Shutdown Rate	SSD	Gate Drive dV/dt		0.214		V/ms
SPK Input Blinding Time	Tblind	RBT=28.5k CBT=100pF	1.5	3.0		µs
SPK Input Window Time	Twin	RWT=21.28k CWT=6800pF	115	173		µs