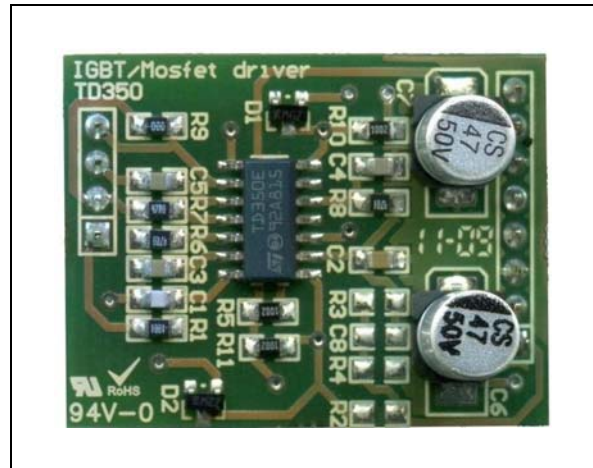


## Advanced IGBT/MOSFET driver demonstration board based on the TD350E

Data brief

### Features

- 1.5 A source/2.3 A sink (typ) gate drive
- Active Miller clamp feature
- Two-level turn-off with adjustable level and delay
- Desaturation detection
- Negative gate drive ability
- Separate sink and source outputs for easy gate driving
- UVLO protection
- Input compatible with pulse transformer or optocoupler
- FAULT status output



### Description

The DEMOTD350 demonstration board is an advanced gate driver for IGBTs and power MOSFETs.

Control and protection functions are included and allow the design of high reliability systems.

The device integrates a two-level turn-off feature with adjustable level and delay.

This function protects against overvoltage at turn-off in case of overcurrent or short-circuit conditions.

The same delay set in the two-level turn-off feature is applied at turn-on to prevent pulse width distortion.

The integrated active Miller clamp function avoids the need of negative gate drive in most applications and allows the use of a simple bootstrap supply for the high-side driver.

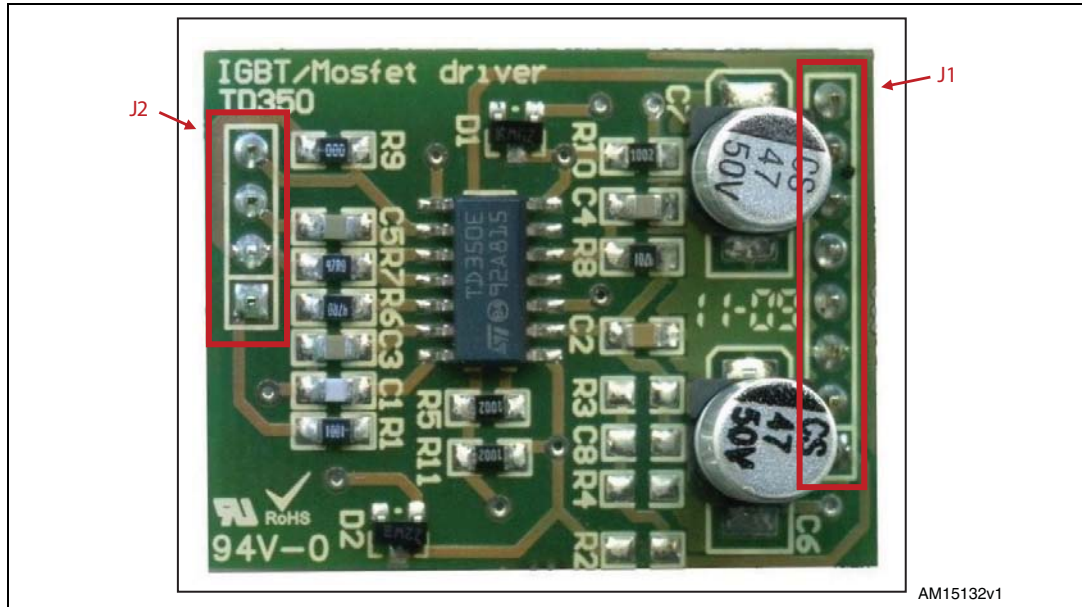
The IGBT desaturation protection and a FAULT status output are available.

The board is compatible with both pulse transformer and optocoupler input signals.

# 1 Board description

The DEMOTD350 provides strip-connectors for the dual supply voltage, input signal and the output for the power MOSFET/IGBT connection.

**Figure 1. DEMOTD350 demonstration board**



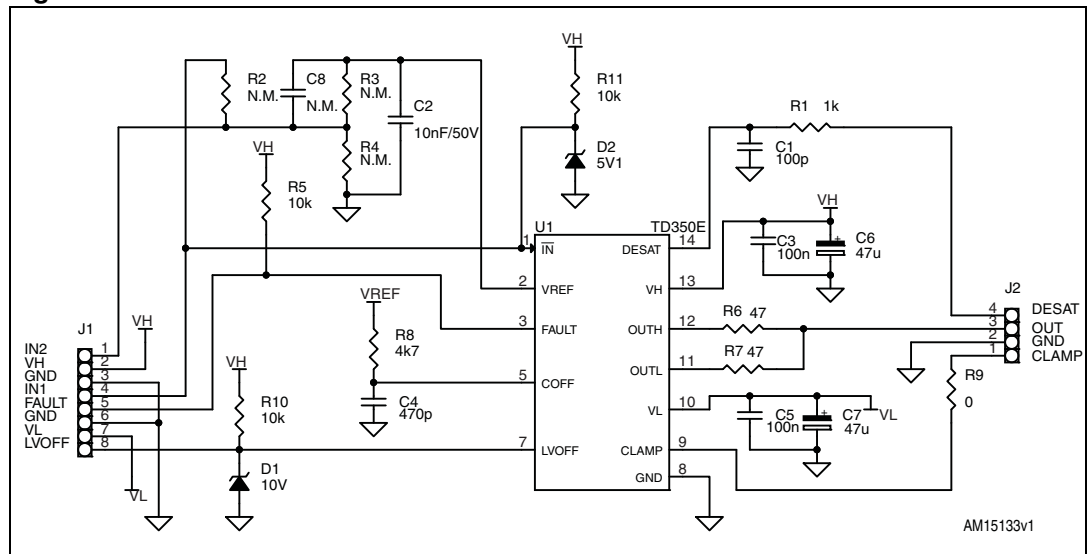
**Table 1. DEMOTD350: strip-connector description**

Strip	Pin number	Label	Description
J1	1	IN2	Input pin for signal coming from pulse transformers (optional parts must be connected, see <a href="#">Figure 2</a> )
J1	2	VH	Positive supply voltage
J1	3	GND	Ground reference
J1	4	IN1	Input pin
J1	5	FAULT	Fault status output
J1	6	GND	Ground reference
J1	7	VL	Negative voltage
J1	8	LVOFF	TD350E 2-level turn-off voltage level pin
J2	1	DESAT	Desaturation protection
J2	2	OUT	Driver output for power connection (gate resistors on board)
J2	3	GND	Ground reference
J2	4	CLAMP	TD350E active clamp pin

**Table 2. DEMOTD350: electrical specification (recommended values)**

Parameter	Value
Positive supply voltage range (VH vs. GND)	12 to 26 V
Negative supply voltage range (VL vs. GND)	-10 to 0 V
Maximum supply voltage (VH – VL)	26 V
Operating temperature range	-40 °C to +125 °C

**Figure 2. DEMOTD350 schematic**



**Table 3. DEMOTD350: component list**

Part reference	Part value	Part description
C1	100pF – 50V	Ceramic capacitor
C2	10nF – 6.3V	Ceramic capacitor
C3, C5	10nF – 50V	Ceramic capacitor
C4	470pF – 50V	Ceramic capacitor
C6, C7	47uF – 50V	Electrolytic capacitor
C8	N.M.	Ceramic capacitor
D1	BZX84C10V	Zener diode
D2	BZX84C5V1	Zener diode
J1		Strip 8x1
J2		Strip 4x1
R1	1k $\Omega$ - 1 %	Resistor
R2, R3, R4	N.M.	Resistor
R5, R10, R11	10k $\Omega$ - 1%	Resistor
R6, R7	47 $\Omega$ - 1%	Resistor
R8	4.7k $\Omega$ - 1%	Resistor
R9	0 $\Omega$	Resistor
U1	TD350E	Advanced IGBT/MOSFET driver

Figure 3. DEMOTD350: component placement

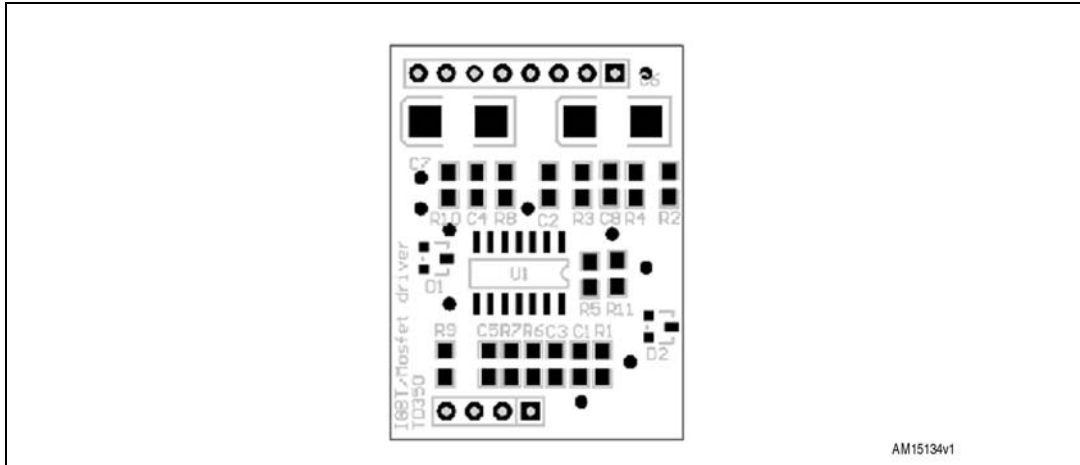


Figure 4. DEMOTD350: top side layout

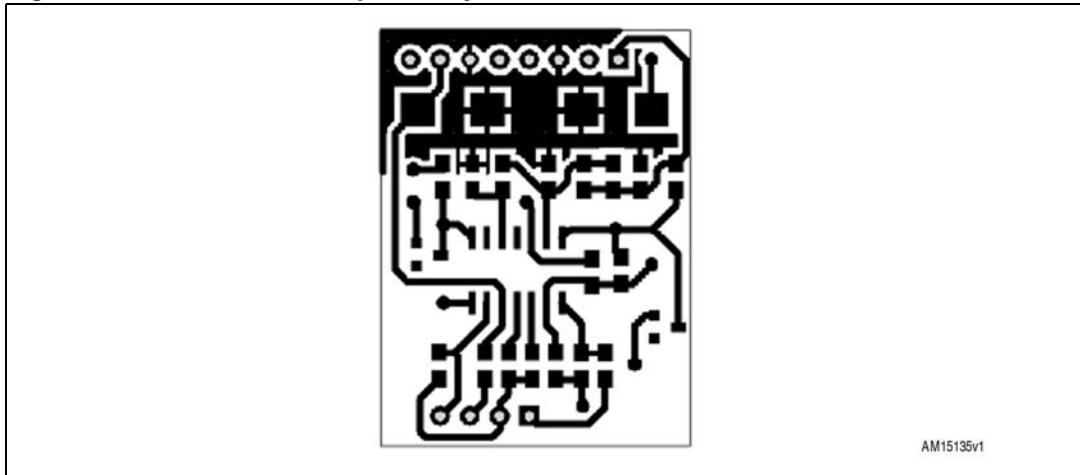
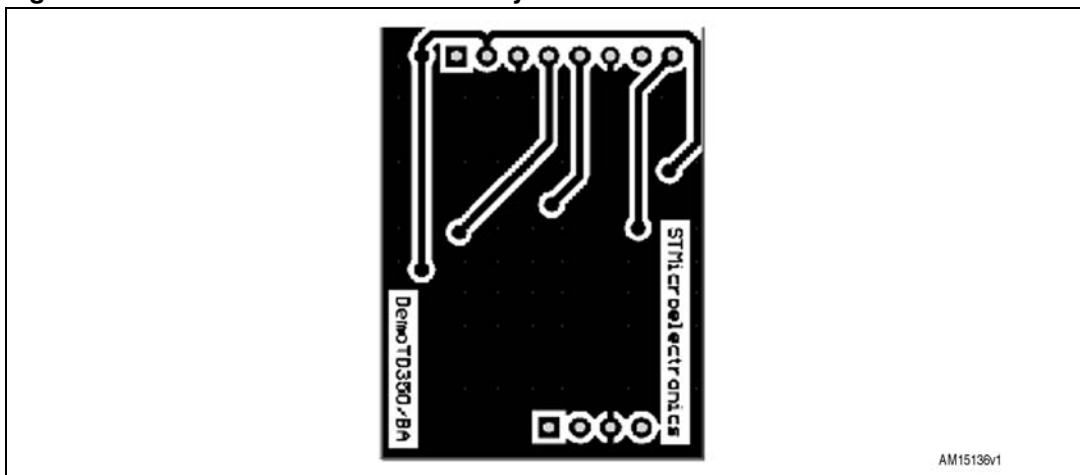


Figure 5. DEMOTD350: bottom side layout



## 2 Revision history

**Table 4. Document revision history**

Date	Revision	Changes
21-Sep-2012	1	Initial release.

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