

Application Note AN-2101

SCALE™2 Family



Mounting Recommendations for 1SP0335, 1SP0340 and 1SP0635 Gate Driver Families

Abstract

This application note provides basic guidelines on how to install the 1SP0335, 1SP0340 and 1SP0635 gate driver families on the IGBT modules. These recommendations are helpful to ensure proper mounting of the gate driver to the target IGBT module. It should be noted that it is recommended to use the exact target IGBT module. If issues arise due to use of different IGBT package, information in this note can help.

Mounting instructions

- ✓ The gate driver is mounted on top of the target power module. The mounting torque is given with M_{Main} in below table. The given value refers to the mechanical property of the corresponding driver. M_{Main} must not exceed the values given in the respective datasheet of the target power module. Hence, actual mounting torque may be smaller than M_{Main} .
- ✓ To ensure proper cooling by natural convection or forced air minimum clearance of 50 mm of the driver top side is required. This includes also that the AC and/or DC bus bars are not covering parts or the entire driver top side.
- ✓ Mechanical mismatching with driver transformer or bottom side components might occur if module package is different, and will consequently cause PCB bending.
- ✓ To avoid mechanical stress of the gate driver during and after the mounting process, any imposed bending or warping force to the gate driver must not lead to a vaulting or twisting of the PCB of more than 0.75 % per axis.
- ✓ To avoid transformer and bottom side components collision with the IGBT package it is recommended to use washers between driver and module, as shown in Fig.1. The same washer must be mounted under the plastic spacer or the plastic spacer length must be adjusted by the corresponding spacer thickness.
- ✓ To make sure the PCB does not bend, longer spacer or an additional washer can be used.
- ✓ Make sure to comply with Mechanical Handling instructions given in AN-1501:
www.power.com/sites/default/files/documents/AN-1501_handling_instructions.pdf
- ✓ The nominal distance between transformer and PCB is 1.55 mm. Taking all tolerances into account, a distance of up to 1.85 mm should be considered.
- ✓ Examples of possible washers:
 - Vogt Verbindungstechnik AG (<https://www.vogt.ch/>), P04207012067
 - Misumi (<https://uk.misumi-ec.com/>), BBW-0407-15, BBW-0408-10, BBW-0408-15
 - Ettinger (<https://www.ettinger.de/en/>), 003.01.343

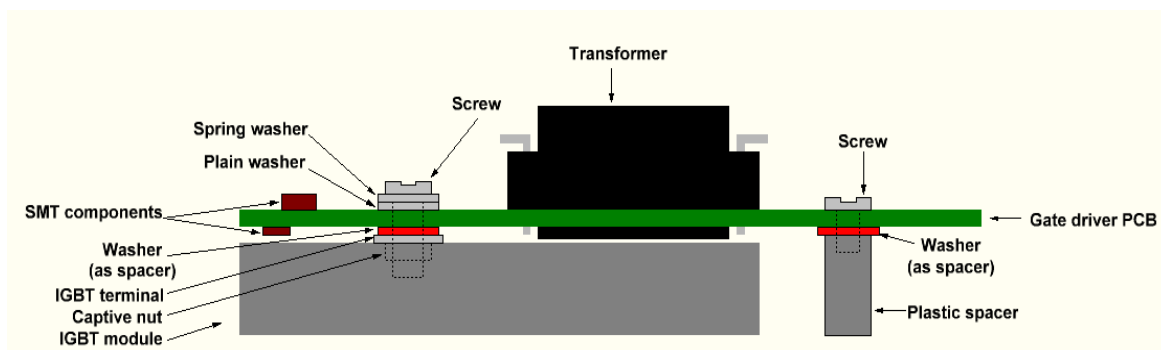


Figure 1. Mounting recommendation of the gate driver

Parameter	Symbol	Conditions $T_A = 25\text{ }^\circ\text{C}$	Min	Typ	Max	Unit
Mounting						
Mounting torque ¹	M_{Main}	Screw M4				Nm
Washer diameter ¹	d_{M3}	Refer to Fig.1			8.0	mm
Washer thickness			1			mm
Bending	I_{bend}	According to IPC			0.75	%

Notes:

1. Refer to data sheet of the IGBT module

Revision	Notes	Date
1.0	Released by Power Integrations	01/22

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