

ABB 5SHX1060H0003 / 5SHY 35L4510 Datasheet Summary

Document Title: ABB 5SHY 35L4510 Asymmetric Integrated Gate-Commutated Thyristor (IGCT) Datasheet Summary

Device Model: 5SHX1060H0003 (Ordering Code) / 5SHY 35L4510 (Technical Type)

Document Type: Technical Parameter Summary (Compiled from publicly available information)

Release Date: [Note: This should be the official datasheet release date]

Document Status: This summary is for reference only. Always refer to the official ABB datasheet for the authoritative version.

1. Product Identification & Overview

Item	Description
Product Name	Asymmetric Integrated Gate-Commutated Thyristor
ABB Ordering Number	5SHX1060H0003
ABB Technical Type	5SHY 35L4510
Core Function	High-power, fast-switching device for Voltage Source Inverters.
Technology Highlights	Combines the low conduction loss of a thyristor with the controlled switching of a gate-driven device. Ideal for medium-voltage, high-current applications.
Typical Applications	Medium-Voltage Drives (e.g., ABB ACS 2000 series), Static Var Compensators (STATCOMs), High-Power Industrial Drive Systems.

2. Absolute Maximum Ratings

Operation under any of the following conditions may cause permanent damage to the device.

Parameter	Symbol	Value	Condition/Unit
Repetitive Peak Off-State Voltage	V_{DRM}	4500 V	–
Repetitive Peak Reverse Voltage	V_{RRM}		[See official datasheet]
Maximum Turn-Off	I_{TGQM}	4180 A	–

Parameter	Symbol	Value	Condition/Unit
Current			
On-State Current (RMS)	I_{TRMS}		[See official datasheet]
On-State Current (AVG)	I_{TAV}		[See official datasheet]
Critical Rate of Rise of On-State Current	di/dt		[See official datasheet]
Operating Junction Temperature	T_{vj}	-40 to +125 ° C	–
Storage Temperature	T_{stg}	-40 to +125 ° C	–

3. Thermal & Mechanical Characteristics

Parameter	Symbol	Value	Condition/Unit
Case Type	–	Press-Pack	–
Mounting Method	–	Double-Side Cooling	Requires specific clamping force
Recommended Clamping Force	F		[kN], [See official datasheet]
Thermal Resistance (Junction to Case)	$R_{th(j-c)}$		[K/kW], [See official datasheet]

3. Electrical Characteristics

Typical values at $T_{vj} = 25^{\circ}\text{C}$ and $T_{vj} = 125^{\circ}\text{C}$.

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
On-State Voltage	V_{TM}	–	[Value >]	–	V	[At $I_T = X$ A]

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Max Gate Trigger Current	I_{GT}	–	–	[Value]	A	–
Turn-Off Loss	E_{off}	–	[Value]	–	mJ	[Specific V_D, I_T]
Gate Drive Loss	E_G	–	[Value]	–	J	–

5. Characteristic Curves

(Note: The following charts are typically included in the full datasheet but are not part of this text summary)

- **Output Characteristic Curve:** On-State Current (I_T) vs. On-State Voltage (V_T)
- **Switching Energy Curve:** Turn-Off Loss (E_{off}) vs. Turn-Off Current (I_T)
- **Thermal Impedance Curve:** Transient Thermal Impedance ($Z_{th(j-c)}$) vs. Pulse Width (t_p)

6. Gate Unit Requirements

The IGCT requires a dedicated, matched Gate Commutation Unit. This unit must provide:

- A very high-amplitude negative gate current pulse for turn-off.
- Precise timing and control.
- Comprehensive monitoring and protection functions.

Refer to the relevant ABB application notes for specific Gate Unit models and connection details.

7. Installation & Handling Notes

1. **Clamping Force:** Installation MUST be performed using a torque wrench or hydraulic tool to ensure the clamping force is within the datasheet's specified range. Incorrect force will degrade thermal performance or damage the device.
2. **ESD Sensitive:** The IGCT is an Electrostatic Sensitive Device (ESD). Proper ESD precautions must be taken during handling and storage.

3. **Cleanliness:** The mounting surfaces and heat sinks must be kept extremely clean. Any particles can impair thermal contact and electrical insulation.
 4. **Professional Installation:** It is strongly recommended that installation and replacement be carried out by personnel trained by ABB.
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Important Notice

Disclaimer:

This document is a summary of key information from the official ABB datasheet, intended for quick reference. **It is NOT a substitute for the complete official datasheet.** Before any circuit design, installation, or operation, **it is imperative to obtain and carefully read the latest full version of the datasheet directly from ABB.** The compiler of this summary assumes no liability for any errors, losses, or damages that may arise from its use.

How to Obtain the Full Datasheet:

It is recommended to obtain the complete PDF version of the "5SHY 35L4510 Datasheet" through an official ABB authorized distributor, the ABB website, or by contacting your local ABB technical support.