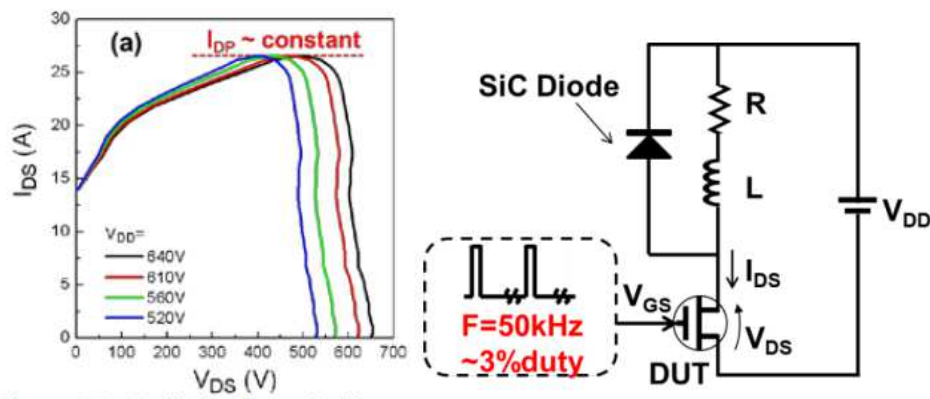


4.E.2 Lifetime evaluation for Hybrid-Drain-embedded Gate Injection Transistor (HD-GIT) under practical switching operations by Ayanori Ikoshi, Masahiro Toki, Hiroto Yamagiwa, Daijiro Arisawa, Masahiro Hikita, Kazuki Suzuki, Manabu Yanagihara, Yasuhiro Uemoto, Kenichiro Tanaka, and Tetsuzo Ueda, Automotive and Industrial Systems Company, Panasonic Corporation

HD-GITs are high-performance normally-off transistors based on gallium nitride. This paper from Panasonic reports one of the first studies on the reliability of HD-GITs in actual practical conditions. The authors performed dynamic high-temperature operating lifetime tests on HD-GITs with varying input voltages, switching current and temperatures. Based on the acceleration factors obtained within this analysis, they evaluated the lifetime of HD-GITs operated in a 3 kW power factor correction (PFC) circuit (24 years).



Hard switching ID-VD locus measured on GaN power transistors and related circuit