

**Study on Application of Wide-bandgap Semiconductor Devices
to Electric Traction Infrastructure**

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Wide-bandgap semiconductor devices with new materials such as silicon carbide (SiC) have been developed recently. These new devices have superior characteristics such as lower power loss and higher withstand voltage; thereby they are expected to bring energy saving and downsizing in power electronics. Power electronics has been also applied to railway technologies and benefits brought by such devices are important to its application to railway technologies. For these reasons, studies on effects of future application of new devices are required. This paper reports on a technical survey of new devices and studies on their application to railway technologies especially regarding a rectifier and a semiconductor circuit breaker.