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(54) **DUAL MODE TRANSIENT RECOVERY
CONTROL METHOD OF DC-DC
CONVERTERS**

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G05F 1/40 (2006.01)
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(58) **Field of Classification Search** 323/222–226,
323/268, 271, 282, 284, 285; 363/39, 50
See application file for complete search history.

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(57) **ABSTRACT**

A dual mode transient recovery control method and system is proposed, which is designed for use with a direct-current (DC) power output unit, such as a DC-DC converter, for fast transient recovery of DC output power by switching the DC-DC converter to operate between a hysteretic mode and a PWM (Pulse Width Modulation) mode. The proposed control method and system is characterized by the use of a dual-threshold scheme to compare the output voltage. This feature may discharge the transient output voltage, raised by the over-shoot, to the steady state by switching to the discharging mode, and similarly charge the transient output voltage, dropped by the under-shoot, to the steady state by switching to the charging mode. This mechanism may allow DC-DC converters with higher slew rate to make transient ripples of output voltage to return to steady state more quickly, and additionally allow a better level of noise immunity.

19 Claims, 4 Drawing Sheets

