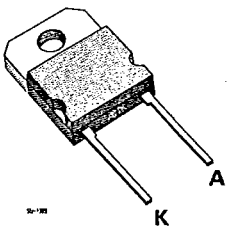
SGS45R80

ADVANCE DATA

HIGH SPEED SWITCHING APPLICATIONS

- VOLTAGE RANGE: 800V
- AVERAGE CURRENT: 45A
- VERY LOW REVERSE RECOVERY TIME: t_{rr} 125ns
- VERY LOW SWITCHING LOSSES
- LOW NOISE TURN-OFF SWITCHING

Typical applications include freewheel diodes in motor control systems.



ABSOLUTE MAXIMUM RATINGS

V_{RRM}	Peak repetitive reverse voltage	800	V
V_{RWM}	Working peak reverse voltage	800	V
V_R	Continuous reverse voltage	800	V
I_{FRM}	Repetitive peak forward current (t = 10μs)	600	A
$I_{F(AV)}$	Average forward current T_{case} = 70°C (switching operation, δ = 0.5)	45	A
I_{FSM}	Surge non repetitive forward current (t = 10ms)	450	A
P_{tot}	Total dissipation at T_{case} = 70°C	90	W
T_{stg}	Storage temperature	−65 to 150	°C
T_j	Max. operating junction temperature	150	°C

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THERMAL DATA

$R_{thj\text{-}case}$	Thermal resistance junction-case	max 0.9 °C/W

ELECTRICAL CHARACTERISTICS (T_{case} = 25°C unless otherwise specified)

Parameters		Test Contitions	Min.	Typ.	Max.	Unit
I_R	Reverse Current	$V = V_R$ $T_j = 25°C$ $V = V_R$ $T_j = 125°C$			100 4	μA mA
V_F(*)	Forward voltage	$I_F = 45A$ $T_{case} = 25°C$ $I_F = 45A$ $T_{case} = 125°C$		1.3 1.3	1.5 1.5	V V
t_{rr}	Reverse recovery time	$I_F = 1A$ di/dt = 50A/μs $V_R = 30V$ $I_F = 45A$ di/dt = 100A/μs $V_R = 30V$			125 400	ns ns
Q_{rr}	Recovered charge	$I_F = 45A$ di/dt = 100A/μs $V_R = 30V$		3		μC
V_{FP}	Forward recovery overvoltage	$I_F = 45A$ di/dt = 100A/μs		11		V

* Pulsed: pulse duration ≤300μs, duty cycle ≤2%

Fig. 1 Forward overvoltage vs. current slope

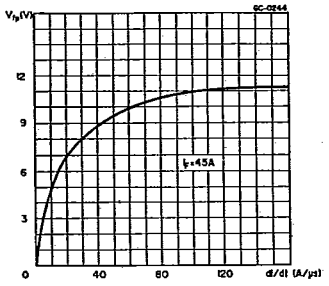

Fig. 2 Reverse leakage current vs. junction temperature

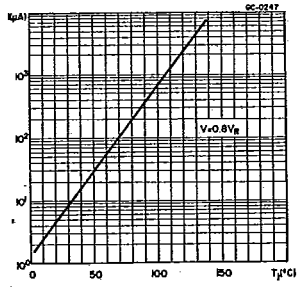

Fig. 3 Voltage drop vs. forward current