Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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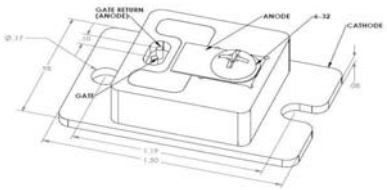
Silicon Carbide Thyristor

V_{FBM}	=	6500 V
$I_{T(AVM)}$	=	80 A
Q_{rr}	=	4.2 µC

Features

- 6500 V Asymmetric SiC NPNP Thyristor
- 150 °C operating temperature
- Robust compact fully soldered package
- SOT-227 (ISOTOP) base plate form factor
- Fast turn on characteristics
- Lowest in class $Q_{rr}/I_{T(AVM)}$

Package



Applications

- Grid Tied Solar Inverters
- Wind Power Inverters
- HVDC Power Conversion
- Utility Scale Power Conversion
- Trigger Circuits/Ignition Circuits

Maximum Ratings

Parameter	Symbol	Conditions	Values	Unit
Repetitive peak forward voltage	V_{FBM}	T_j = 25 °C	6500	V
Repetitive peak reverse voltage	V_{RBM}	T_j = 25 °C	50	V
Maximum average on-state current	$I_{T(AVM)}$	$T_C \leq$ 125 °C	80	A
RMS on-state current	$I_{T(RMS)}$	$T_C \leq$ 125 °C	139	A
Non-repetitive peak on-state current	$I_{T,max}$	T_C= 25 °C, t_p = 2 us, D = 0.1	tbd	A
Power dissipation	P_{tot}	T_C= 25 °C	1563	W
Operating and storage temperature	T_j, T_{stg}		-55 to 150	°C

Electrical Characteristics

Parameter	Symbol	Conditions	Values min.	Values typ.	Values max.	Unit
Maximum peak on state voltage	$V_{KA(ON)}$	I_K = -80 A, T_j = 25 °C I_K = -80 A, T_j = 150 °C		-3.70 -3.45		V
Anode-cathode threshold voltage	$V_{KA(TO)}$	T_j = 25 °C (150 °C)		-3.0(-2.7)		V
Anode-cathode slope resistance	R_{AK}	T_j = 25 °C (150 °C), I_K = -80 A		6.0(6.3)		mΩ
Leakage current	I_L	V_{KA} = -6500 V, V_{GA} = 0 V, T_j = 25 °C V_{KA} = -6500 V, V_{GA} = 0 V, T_j = 150 °C		15 50		µA
Gate trigger current	I_{GT}	T_j = 25 °C, t_P = 10 µs		-100		mA
Holding current	I_H	T_j = 25 °C		tbd		mA
Rise time	t_R	I_G = -3 A, V_{KA} = -2200 V		190		ns
Delay time	t_D	I_K = -80 A, T_j = 25 °C		50		ns
Reverse recovery charge	Q_{rr}			4.2		µC
Recovered charge, 50% chord	Q_{ra}	dI/dt = 430 A/us, I_K = -70 A, V_{KA} = 20 V		2.3		µC
Reverse recovery current	I_{rm}	dV/dt(re-app) = -460 V/us, T_j = 25 °C		20		A
Circuit commutated turn-off time	t_q			10.1		µs

Thermal Characteristics

Thermal resistance, junction - case	R_{thJC}		0.08	°C/W

Mechanical Properties

Mounting torque for base	M_b	Heat sink surface must be optically flat	1.5	Nm
Mounting torque for top	M_t		1.3	Nm
Weight	W_t		30	g

1. Considering worst case Z_{th} conditions

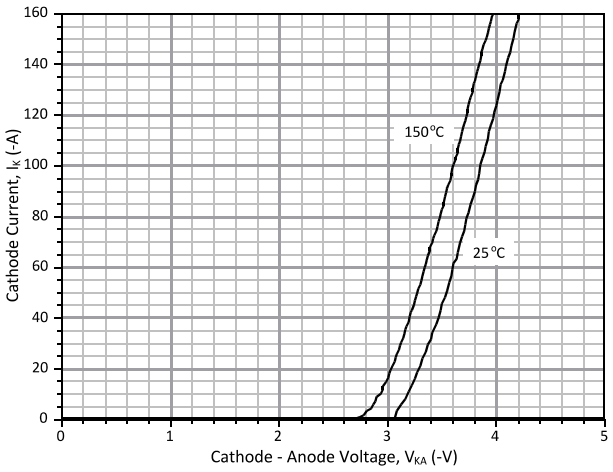


Figure 1: Typical On State Characteristics

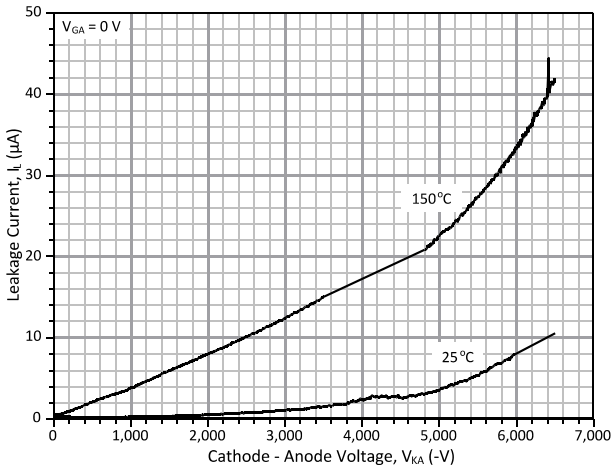


Figure 2: Typical Forward Blocking Characteristics

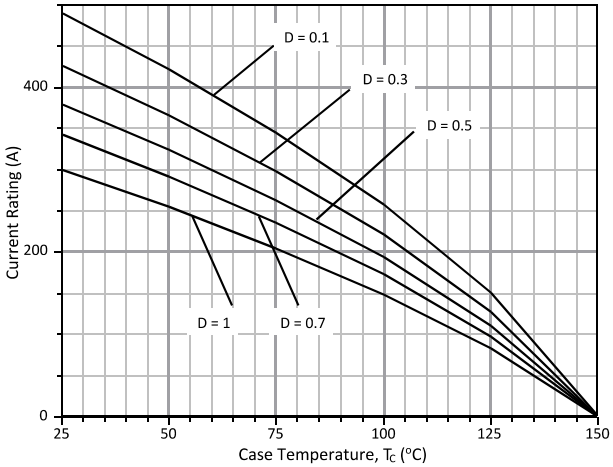


Figure 3: Typical Current Derating Curves (D = t_P/T, t_P = 400 µs[1])

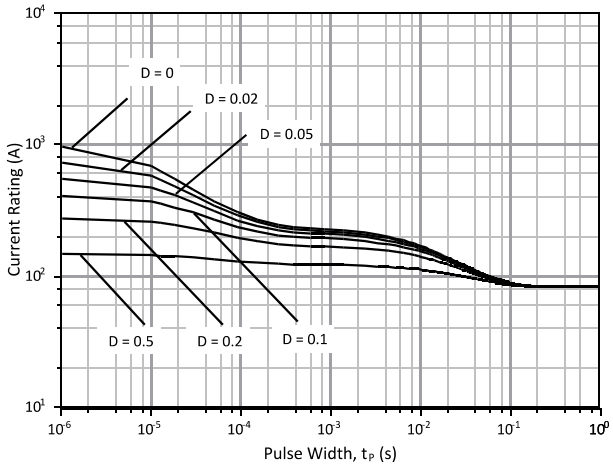


Figure 4: Typical Current Rating versus Pulse Duration Curves at T_C = 120 °C

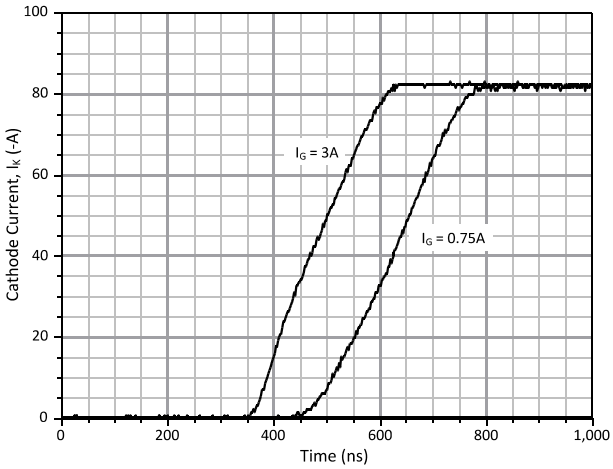


Figure 5: Typical Turn On Characteristics at 25 °C

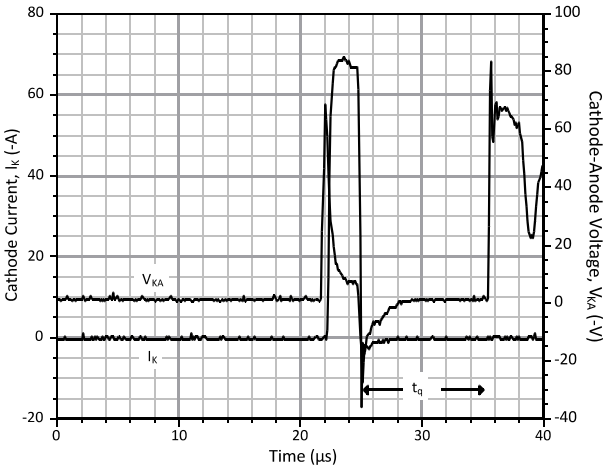


Figure 6: Typical Turn Off Characteristics at 25 °C

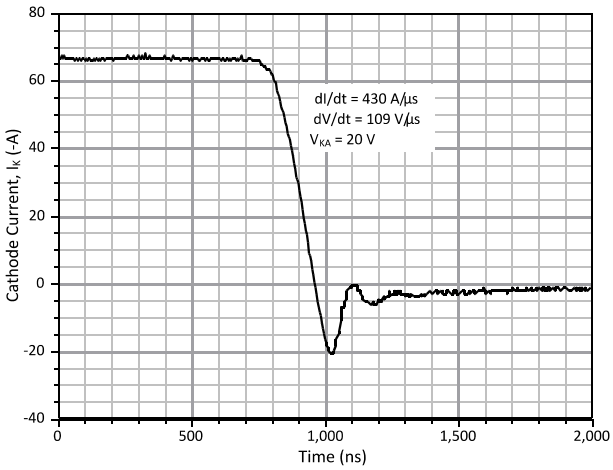


Figure 7: Typical Reverse Recovery Characteristics at 25 °C

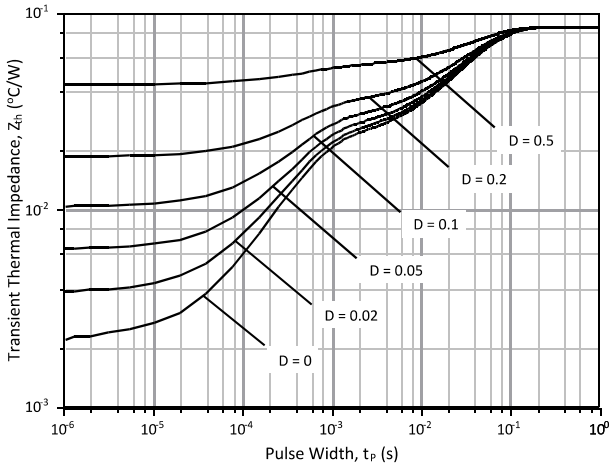


Figure 8: Typical Transient Thermal Impedance

Revision History			
Date	Revision	Comments	Supersedes
2010/11/13	1	First generation release	

Published by
GeneSiC Semiconductor, Inc.
43670 Trade Center Place Suite 155
Dulles, VA 20166