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.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

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Normally – OFF Silicon Carbide Super Junction Transistor

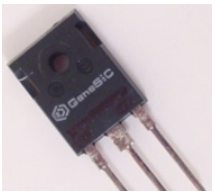
V_{DS}	=	1200 V
$V_{DS(ON)}$	=	1.4 V
I_D	=	50 A
$R_{DS(ON)}$	=	28 mΩ

Features

- 175 °C maximum operating temperature
- Temperature independent switching performance
- Gate oxide free SiC switch
- Suitable for connecting an anti-parallel diode
- Positive temperature coefficient for easy paralleling
- Low gate charge
- Low intrinsic capacitance

Package

- RoHS Compliant



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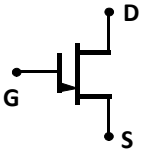


Advantages

- Low switching losses
- Higher efficiency
- High temperature operation
- High short circuit withstand capability

Applications

- Down Hole Oil Drilling, Geothermal Instrumentation
- Hybrid Electric Vehicles (HEV)
- Solar Inverters
- Switched-Mode Power Supply (SMPS)
- Power Factor Correction (PFC)
- Induction Heating
- Uninterruptible Power Supply (UPS)
- Motor Drives

Maximum Ratings unless otherwise specified

Parameter	Symbol	Conditions	Values	Unit
Drain – Source Voltage	V_{DS}	V_{GS} = 0 V	1200	V
Continuous Drain Current	I_D	$T_{C,MAX}$ = 95 °C	50	A
Gate Peak Current	I_{GM}		10	A
Reverse Gate – Source Voltage	V_{SG}		25	V
Reverse Drain – Source Voltage	V_{SD}		25	V
Power Dissipation	P_{tot}	T_C = 25 °C	5	W
Storage Temperature	T_{stg}		-55 to 175	°C

Electrical Characteristics at T_j = 175 °C, unless otherwise specified

Parameter	Symbol	Conditions	Values min.	Values typ.	Values max.	Unit
On Characteristics						
Drain – Source On Voltage	$V_{DS(ON)}$	I_D = 50 A, I_G = 1000 mA, T_j = 25 °C		1.4		V
		I_D = 50 A, I_G = 2000 mA, T_j = 125 °C		1.6		
		I_D = 50 A, I_G = 4000 mA, T_j = 175 °C		2.2		
Drain – Source On Resistance	$R_{DS(ON)}$	I_D = 50 A, I_G = 1000 mA, T_j = 25 °C		28		mΩ
		I_D = 50 A, I_G = 2000 mA, T_j = 125 °C		32		
		I_D = 50 A, I_G = 4000 mA, T_j = 175 °C		44		
Gate Forward Voltage	$V_{GS(FWD)}$	I_G = 500 mA, T_j = 25 °C		3.3		V
		I_G = 500 mA, T_j = 175 °C		3.1		
DC Current Gain	β	V_{DS} = 5 V, I_D = 50 A, T_j = 25 °C		TBD		
		V_{DS} = 5 V, I_D = 50 A, T_j = 175 °C		TBD		
Off Characteristics						
Drain Leakage Current	I_{DSS}	V_R = 1200 V, V_{GS} = 0 V, T_j = 25 °C		18		μA
		V_R = 1200 V, V_{GS} = 0 V, T_j = 125 °C		26		
		V_R = 1200 V, V_{GS} = 0 V, T_j = 175 °C		35		

Electrical Characteristics at T_j = 175 °C, unless otherwise specified

Parameter	Symbol	Conditions	Values			Unit
			min.	typ.	max.	
Switching Characteristics						
Turn On Delay Time	$t_{d(on)}$	V_{DD} = 800 V, I_D = 50 A, $R_{G(on)}$ = $R_{G(off)}$ = 44 Ω, V_{GS} = -8/15 V, L = 1.1 mH, FWD = GB50SLT12, T_j = 25 ºC Refer to Figure 11 for gate current waveform		tbd		ns
Rise Time	t_r			tbd		ns
Turn Off Delay Time	$t_{d(off)}$			tbd		ns
Fall Time	t_f			tbd		ns
Turn-On Energy Per Pulse	E_{on}			tbd		µJ
Turn-Off Energy Per Pulse	E_{off}			tbd		µJ
Total Switching Energy	E_{ts}			tbd		µJ
Turn On Delay Time	$t_{d(on)}$	V_{DD} = 800 V, I_D = 50 A, $R_{G(on)}$ = $R_{G(off)}$ = 44 Ω, V_{GS} = -8/15 V, L = 1.1 mH, FWD = GB50SLT12, T_j = 175 ºC Refer to Figure 11 for gate current waveform		tbd		
Rise Time	t_r			tbd		ns
Turn Off Delay Time	$t_{d(off)}$			tbd		ns
Fall Time	t_f			tbd		ns
Turn-On Energy Per Pulse	E_{on}			tbd		µJ
Turn-Off Energy Per Pulse	E_{off}			tbd		µJ
Total Switching Energy	E_{ts}			tbd		µJ
Thermal Characteristics						
Thermal resistance, junction - case	R_{thJC}			1.64		°C/W

TBD

TBD

Figure 1: Typical Output Characteristics at 25 °C

Figure 2: Typical Output Characteristics at 125 °C

Figure 3: Typical Output Characteristics at 175 °C

Figure 4: Typical Gate Source I-V Characteristics vs. Temperature

Figure 5: Normalized On-Resistance and Current Gain vs. Temperature

Figure 6: Typical Blocking Characteristics

Figure 7: Typical Hard-switched Turn On Waveforms

Figure 8: Typical Hard-switched Turn Off Waveforms

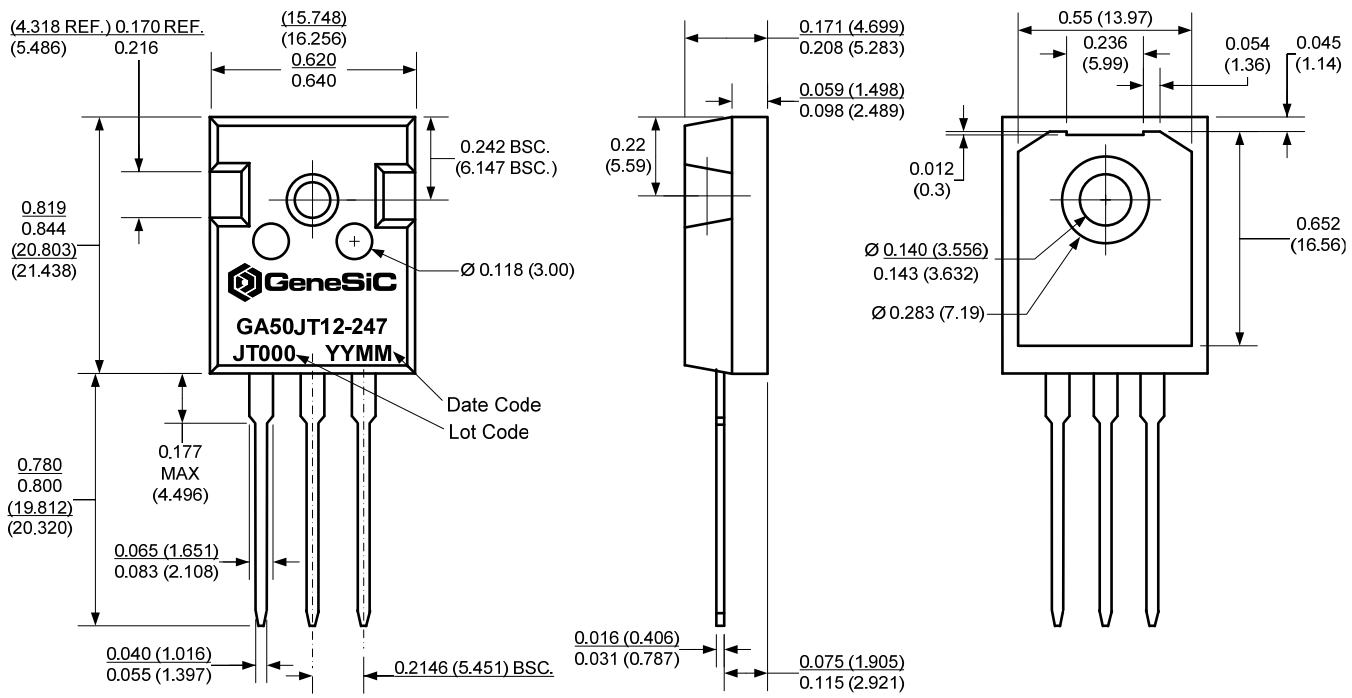
Figure 9: Typical Turn On Energy Losses and Switching Times vs. Temperature

Figure 10: Typical Turn Off Energy Losses and Switching Times vs. Temperature

Figure 11: Typical Gate Current Waveform

Package Dimensions:

TO-247AB **PACKAGE OUTLINE**



NOTE
1. CONTROLLED DIMENSION IS INCH. DIMENSION IN BRACKET IS MILLIMETER.
2. DIMENSIONS DO NOT INCLUDE END FLASH, MOLD FLASH, MATERIAL PROTRUSIONS

Revision History			
Date	Revision	Comments	Supersedes
2013/01/14	0	Initial release	

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