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SiC Super Junction Transistor
650 Volt 7 Amp Hermetic SMD
MYXS00650-07DA0

Product Overview

Features

- High voltage 650V
- High current 7A
- High temperature 210°C
- BeO free and RoHS compliant
- HMP solder tinned leads available
- Silicon Carbide (SiC) exhibits low on resistance $R_{DS(On)}$ and superior high temperature performance
- Extremely fast switching
- Screening options available
  - Commercial high temperature
  - In accordance with MIL-PRF-19500
  - Other options available on request
- Surface mount
- Other packaging options available

Benefits

- Low on resistance $R_{DS(On)}$
- Voltage controlled
- Low gate charge
- Low intrinsic capacitance

Applications

- Harsh environment motor drive
- Harsh environment inverter
- Switch power supplies
- Power factor correction modules
- Induction heating

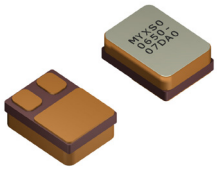
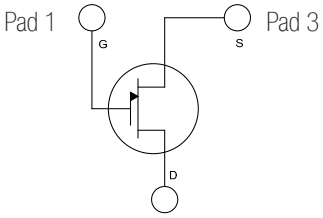


Figure 1: SMD 0.5



Pad 2 (Large Pad)

Figure 2: Circuit Diagram

Absolute Maximum Ratings*

Symbols	Parameters	Values	Units
V_{DS}	Drain Source Voltage (v_{GS} = 0V)	650	Volts
I_D	Continuous Drain Current	7	Amps
I_{GM}	Gate Peak Current	5	Amps
V_{GS}	Reverse Gate - Source Voltage	200	Volts
V_{DS}	Reverse Drain - Source Voltage	40	Volts
P_D	Total Power Dissipation	54	Watts
T_J & T_{stg}	Junction Temperature Range & Storage Temperature Range	-55 to +210	^{0}C

Thermal Properties

Symbols	Parameters	Values	Units
$R_{\theta JC}$	Thermal Resistance, Junction To Case	3.4	^{0}C / Watt

Electrical Characteristics

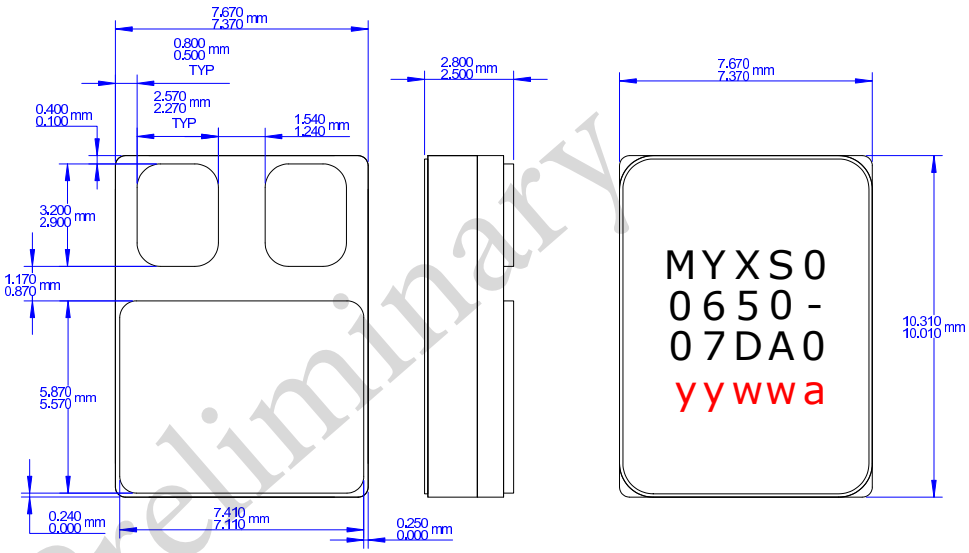
Symbols	Parameters	Test Conditions	Min	Typ	Max	Units
V_{DS}	Drain Source On Voltage	I_D = 7 A, I_G = 250mA, T_J=25°C		1.2		V
		I_D = 7 A, I_G = 500mA, T_J=175°C		2.2		
		I_D = 7 A, I_G = 500mA, T_J=210°C		3.1		
$R_{DS(On)}$	Drain Source On State Resistance	I_D = 7 A, I_G = 250mA, T_J=25°C		170		m Ω
		I_D = 7 A, I_G = 500mA, T_J=175°C		330		
		I_D = 7 A, I_G = 500mA, T_J=210°C		550		
$V_{GS(FWD)}$	Gate Forward Voltage	I_G=500mA, T_J=25°C		3		V
		I_G=500mA, T_J=210°C		2.7		
β	DC Current Gain	V_{DS}=5V, I_D=7A, T_J =25°C		120		
		V_{DS}=5V, I_D=7A, T_J =210°C		80		

Off Characteristics

Symbols	Parameters	Test Conditions	Min	Typ	Max	Units
I_{DSS}	Drain Leakage Current	V_R = 650 V, V_{GS} = 0 V, T_J=25°C		2.5		μA
		V_R = 650 V, V_{GS} = 0 V, T_J=175°C		4		
		V_R = 650 V, V_{GS} = 0 V, T_J=210°C		10		

Charge Characteristics

Symbols	Parameters	Test Conditions	Min	Typ	Max	Units
C_{ISS}	Input Capacitance	V_{DS}= 35V, V_{GS}=0V, f=1MHz		720		pF
C_{OSS}	Output Capacitance			88		
C_{RSS}	Reverse Transfer Capacitance			88		



yywwa = Date code and batch

yy = year
ww = week
a = batch

(Font and text colour is not representative of actual parts produced)

Figure 3: Package Dimensions

* Absolute Maximum Ratings Disclaimer

Stresses greater than the values listed under the Absolute Maximum Ratings table may cause permanent damage to the device. These values are stress ratings, functional operation of the device at these or conditions greater than those listed is not implied herein. Exposure to absolute maximum conditions for any duration may affect device reliability and operational life.

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Document Title

Silicon Carbide Super Junction Transistor Normally Off 650 Volt 7 Amp Hermetic SMD MYXS00650-07DA0

Revision History

Revision #	History	Release Date	Status
1.0	Initial release	March 2014	Preliminary