

## Product Overview

### Features

- High voltage 600V isolation in a small package outline
- High current 20A
- High temperature 210°C
- RoHS compliant
- HMP solder tinned leads available
- Surface mountable
- Silicon Carbide (SiC) device, gives a superior high temperature performance
- No reverse recovery time
- Screening options available
  - Commercial high temperature
  - In accordance with MIL-PRF-19500
  - Other options available on request
- Other package options available

### Benefits

- High speed switching with low capacitance
- High blocking voltage with low  $R_{DS(on)}$
- Reduction of heat sink requirements

### Applications

- Harsh environment motor drive
- Harsh environment inverter
- Induction heater

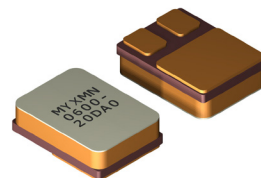


Figure 1: SMD 0.5

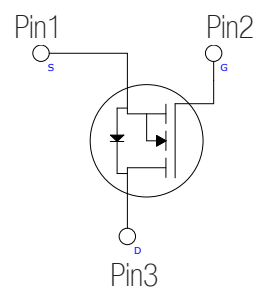


Figure 2: Circuit Diagram  
(viewed from base of package)

### Absolute Maximum Ratings\*

Symbols	Parameters	Values	Units
$V_{DS}$	Drain Source Voltage	600	Volts
$I_D$	Continuous Drain Current	20	Amps
$I_{AR}$	Repetitive Avalanche Current ( $I_D = 20A, V_{DD} = 50V, L = 3mH$ )	20	Amps
$V_{GS}$	Gate Source Voltage	-10 / +25	Volts
$P_{TOT}$	Total Power Dissipation	123	Watts
$T_J$	Junction Temperature Range	-55 to +210	°C
$T_{stg}$	Storage Temperature Range	-55 to +210	°C

### Thermal Properties

Symbols	Parameters	Values	Units
$R_{\theta JC}$	Thermal Resistance, Junction To Case	1.5	°C / Watt

## Electrical Characteristics

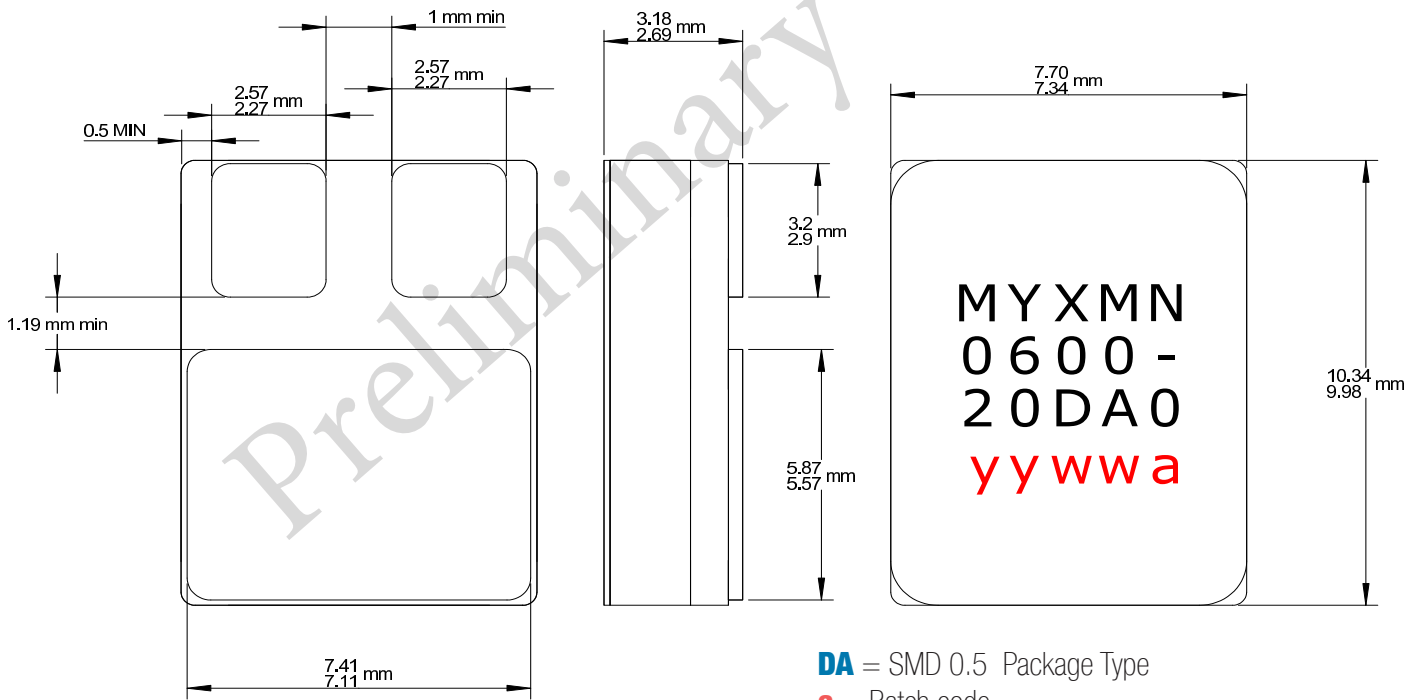
Symbols	Parameters	Test Conditions	Min	Typ	Max	Units
$V_{(BR)DSS}$	Drain Source Breakdown	$V_{GS}=0V, I_D=100\mu A, T_J=25^\circ C$	600			Volts
$V_{GS(th)}$	Gate Threshold	$V_{DS}=10V, I_D=1mA, T_J=-55^\circ C$	2.2	2.8		Volts
		$V_{DS}=10V, I_D=1mA, T_J=25^\circ C$	1.7	2.2		
		$V_{DS}=10V, I_D=1mA, T_J=125^\circ C$	1.3	1.5		
		$V_{DS}=V_{GS}, I_D=1mA, T_J=210^\circ C$	1.0	1.3		
$I_{DSS}$	Zero Gate Voltage Drain	$V_{DS}=600V, V_{GS}=0V, T_J=25^\circ C$		1	100	$\mu A$
		$V_{DS}=600V, V_{GS}=0V, T_J=210^\circ C$		10	450	
$I_{GSS}$	Gate-Source Leakage Current	$V_{GS}=20V, V_{DS}=0V, T_J=25^\circ C$			0.25	$\mu A$
$R_{DS(on)}$	Drain Source On State Resistance	$V_{GS}=20V, I_D=20A, T_J=0^\circ C$	60	90	115	m $\Omega$
		$V_{GS}=20V, I_D=20A, T_J=25^\circ C$	70	100	125	
		$V_{GS}=20V, I_D=20A, T_J=125^\circ C$	90	160	150	
		$V_{GS}=20V, I_D=20A, T_J=210^\circ C$	120	200	250	

## Built in Body Diode Electrical Characteristics

Symbols	Parameters	Test Conditions	Min	Typ	Max	Units
$V_{SD}$	Diode Forward Voltage	$V_{GS}=-5V, I_F=10A, T_J=25^\circ C$		3.5		Volts
		$V_{GS}=-2V, I_F=10A, T_J=25^\circ C$		3.1		

## Gate Charge Characteristics

Symbols	Parameters	Test Conditions	Min	Typ	Max	Units
$Q_{gs}$	Gate to Source Charge	$V_{DD}=400V,$ $V_{GS}=0/20V,$ $I_D=20A$ $T_J=25^\circ C$		10.8		nC
$Q_{gd}$	Gate to Drain Charge			18.0		
$Q_g$	Gate Charge Total			49.2		



**DA** = SMD 0.5 Package Type  
**a** = Batch code  
**yyww** = Date code

yy = year  
ww = week

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

Figure 3: Package Dimensions & Part Marking

### \* 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.

### Document Title

Silicon Carbide Power Mosfet 600 Volt 20 Amp SMD Hermetic MYXMN0600-20DA0

### Revision History

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