

## Product Overview

### Features

- High voltage 1200V
- High current 17A
- High temperature 175°C
- BeO free and RoHS compliant
- HMP solder tinned leads available
- Silicon Carbide (SiC) JFET 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

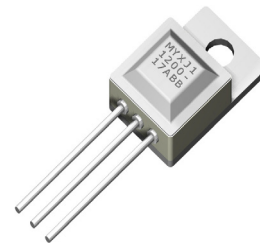


Figure 1: TO-257 Domed Lid

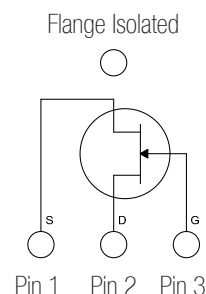


Figure 2: Circuit Diagram

### Absolute Maximum Ratings\*

Symbols	Parameters	Values	Units
$V_R$	DC Reverse Voltage	1200	Volts
$V_{GS}$	Gate Source Voltage	-30 to + 3	Volts
$I_D$	Continuous Drain Current	17	Amps
$I_{DM}$	Pulsed Drain Current ( $t_p=10ms$ , Half Sine Wave)	50	Amps
$I_{FSM}$	Surge Peak Forward Current ( $t_p=10ms$ , Half Sine Wave)	45	Amps
$P_D$	Total Power Dissipation	65	Watts
$T_J$ & $T_{stg}$	Junction Temperature Range & Storage Temperature Range	-55 to +175	°C
$T_L$	Soldering Temperature ( $t_{time}=5$ Seconds)	250	°C

### Thermal Properties

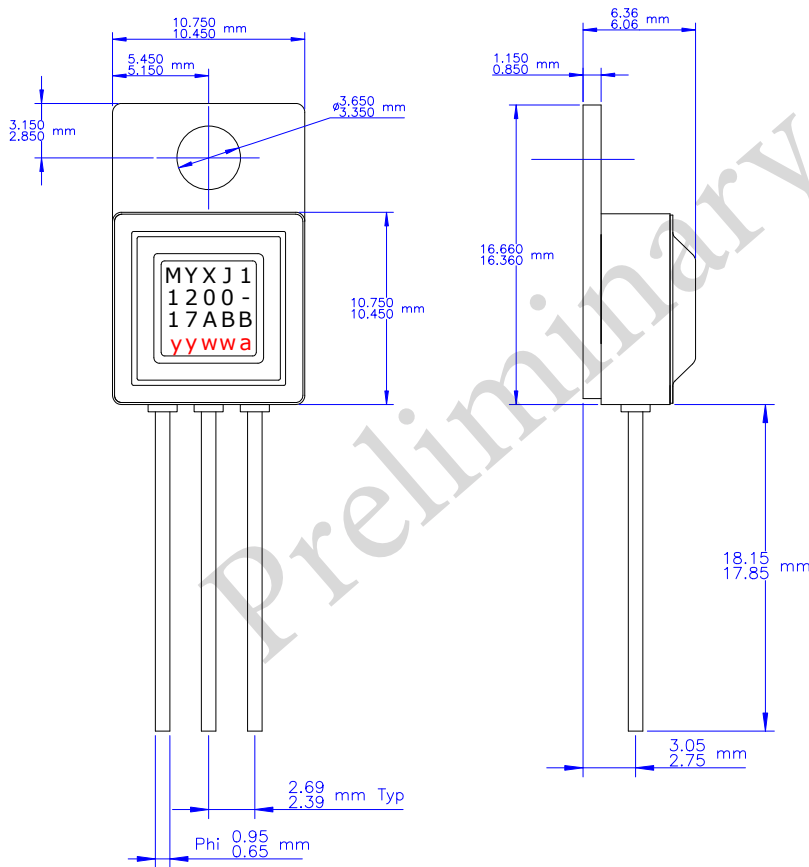
Symbols	Parameters	Values	Units
$R_{\theta JC}$	Thermal Resistance, Junction To Case	2.3	°C / Watt

## Electrical Characteristics

Symbols	Parameters	Test Conditions	Min	Typ	Max	Units
$BV_{DS}$	Drain Source Breakdown	$V_{GS}=-20V, I_D=1000\mu A, T_J=25^\circ C$	1200	1700		V
$BV_{GS}$	Gate Source Breakdown	$V_{GS}=V_{DS}, I_D=1mA, T_J=25^\circ C$	-40			V
$I_D$	Total Drain Leakage Current	$V_{DS}=1200V, V_{GS}=-20V, T_J=25^\circ C$		20	250	$\mu A$
		$V_{DS}=1200V, V_{GS}=-20V, T_J=125^\circ C$			TBD	
		$V_{DS}=1200V, V_{GS}=-20V, T_J=175^\circ C$			TBD	
$I_G$	Total Gate Leakage Current	$V_{GS}=-20V, T_J=25^\circ C$		1	100	$\mu A$
		$V_{GS}=-20V, T_J=125^\circ C$			100	
		$V_{GS}=-20V, T_J=175^\circ C$			100	
$R_{DS(On)}$	Drain Source On State Resistance	$V_{GS}=2V, I_D=17A, T_J=25^\circ C$		50	70	m $\Omega$
		$V_{GS}=0V, I_D=17A, T_J=25^\circ C$		60	80	
		$V_{GS}=2V, I_D=17A, T_J=175^\circ C$			TBD	
		$V_{GS}=0V, I_D=17A, T_J=175^\circ C$			TBD	
$V_{G(th)}$	Gate Threshold Voltage	$V_{GS}=1V, I_D=1mA, T_J=25^\circ C$	-7	-5.5	-4	V
$\Delta V_{G(th)} / \Delta T_J$	Temp Coefficient of Gate Threshold Voltage	$V_{GS}=-20V, I_D=250\mu A$		-1.8		mV/ $^\circ C$
$R_G$	Gate Resistance	$V_{GS}=0V, f=5MHz$		1.5		$\Omega$
$I_{G(FW)}$	Gate Forward Current	$V_{GS}=2.7V, T_J=25^\circ C$		50		mA
		$V_{GS}=2.4V, T_J=125^\circ C$				
		$V_{GS}=2.3V, T_J=175^\circ C$				

## Charge Characteristics

Symbols	Parameters	Test Conditions	Min	Typ	Max	Units
$C_{ISS}$	Input Capacitance	$V_{DS}=100V, V_{GS}=-20V, f=1MHz$		900		$\mu F$
$C_{OSS}$	Output Capacitance			120		
$C_{RSS}$	Reverse Transfer Capacitance			120		
$Q_G$	Total Gate Charge	$V_{DS}=0V \text{ to } 960V, V_{GS}=-15V$		106		nC
$Q_{GD}$	Gate-Drain Charge			82		
$Q_{GS}$	Gate-Source Charge			9		



**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 JFET normally on 1200 Volt 17 Amp Hermetic SMD MYXJ11200-17AAB

## Revision History

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