micross components
transforming specialty electronics

Silicon Carbide JFET Normally On 1200 Volt 17 Amp Hermetic
MYXJ11200-17CAB

Product Overview

Features

- High voltage 1200V
- High current 17A
- High temperature 175°C
- BeO free and RoHS compliant
- 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

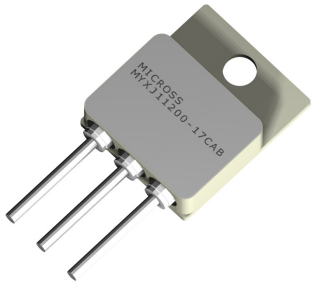

Figure 1: TO-258

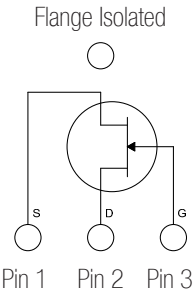

Figure 2: Circuit Diagram

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	57.7	Watts
T_J & T_{stg}	Junction Temperature Range & Storage Temperature Range	-55 to +175	^{0}C
T_L	Soldering Temperature (Time =5 Seconds)	250	^{0}C

Thermal Properties

Symbols	Parameters	Values	Units
$R_{\theta JC}$	Thermal Resistance, Junction To Case	2.6	^{0}C / Watt

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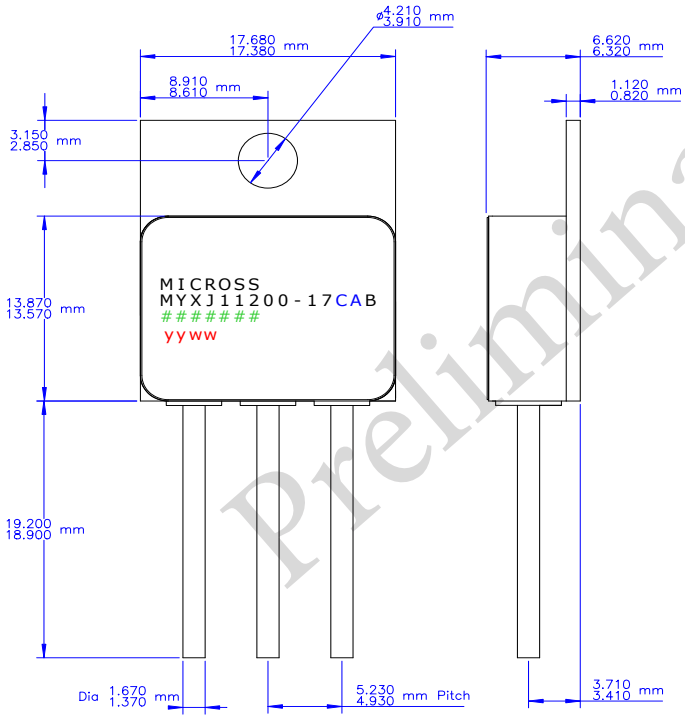
Electrical Characteristics

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

Charge Characteristics

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



BA = TO-254
####### = Batch code
yyww = Date code

yy = year
ww = week

(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

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Revision History

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