

Silicon Carbide (SiC) Schottky Diodes and JFETs

« SemiSouth Die Inside

Why SiC for your Military, Aerospace and Down-hole Applications?

- **Extreme Performance**
 - Operation Beyond Mil Temp
 - Elevated Temp Range (T_j), -55°C to +200°C
 - Extreme Temp Range (T_j), -55°C to +260°C* (*consult factory)
 - Radiation Tolerance >100K RADs TID
- **More efficient than Silicon, GaAs & IGBT**
 - Lower Conduction and Switching Loss
 - Faster Switching Frequencies and Higher Thermal Performance
- **MIL-PRF-19500 Equivalent Processing**
- **Metal Hermetic Packaging**

SiC JFETs

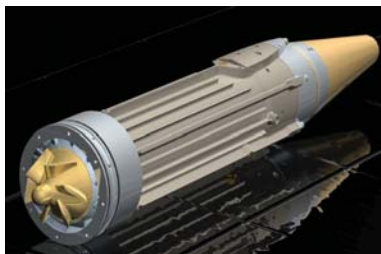
- 1200V & 1700V Breakdown Voltages
- Very Low On Resistance, 45mΩ to 550mΩ
- Switching Times In ns
- No Tail Current, No Saturation Voltage
- Low Gate Charge
- Positive Temp Coefficient

SiC Schottky Diodes

- 1200V Blocking Voltage
- 5 to 30 Amps I_f
- Effective Zero Reverse & Zero Forward Recovery
- High Frequency Operation
- High Speed Low Loss Switching

APPLICATIONS

Down-hole Compressor



Electronics Exposed to Hostile Gasses and Very High Temperatures (175°C and up)

Satellite Solar Inverters



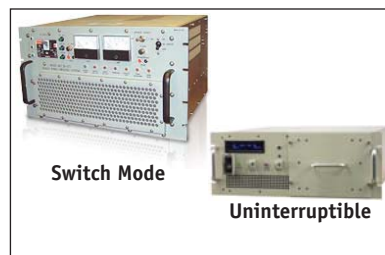
Extreme Temperatures, Rad Tolerant, High Efficiency

Jet Engine Control



Thermal Performance

Mil Spec Power Supplies



High Reliability, Efficiency

PRODUCTS IN DEVELOPMENT

ADVANCED INFORMATION

SiC POWER SCHOTTKY DIODES

Base Part Number	Voltage	Current	Hermetic Package
ASD1200S05	1200V	5A	T0-257
ASD1200S10	1200V	10A	T0-257
ASD1200S20D	1200V	20A	T0-257
ASD1200S30	1200V	30A	T0-257

SiC POWER JFETs

Base Part Number	Voltage	On Resistance	125 ⁰ C Cont. Drain Current	Hermetic Package
ASJE1700R550	1700V	550 mΩ	4A	T0-258
ASJE1200R100	1200V	100 mΩ	17A	T0-258
ASJE1200R063	1200V	63 mΩ	30A	T0-258
ASJD1200R085*	1200V	85 mΩ	45A	T0-258
ASJD1200R045*	1200V	45 mΩ	50A	T0-258

*Normally-On JFETs, the other parts are Normally-Off

ORDERING INFORMATION

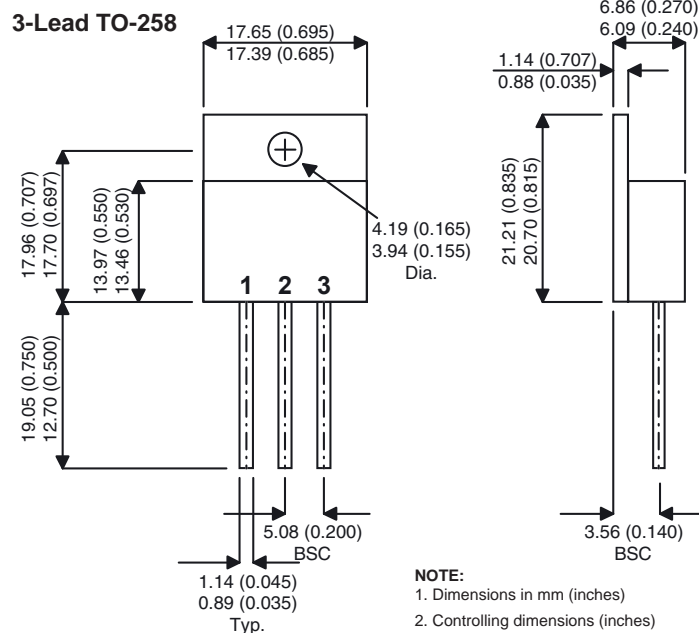
Base Part Number	Configuration	Package	Junction Temp. Range
See Part # Above	Blank = Non-isolated Tab S = Isolated Tab	Y = T0-257 - M = T0-258	EL EX

Temp Ranges: EL = Elevated Temp. Range, -55°C to 200°C (T_j)
EX = Extreme Temp. Range, -55°C to 260°C (T_j) (consult factory)

Processing: MIL-PRF-19500 Equivalent and Other Screening Available Per Customer SCD

SemiSouth has commercial plastic versions available in T0-220 and T0-247. Visit the SemiSouth website <http://www.semisouth.com/products/products.html> for more information.

PACKAGE DIAGRAM



Phone: 512.339.1188
semiconductors@microcross.com
www.microcross.com