SEMICONDUCTOR

# 1S20 THRU 1S200

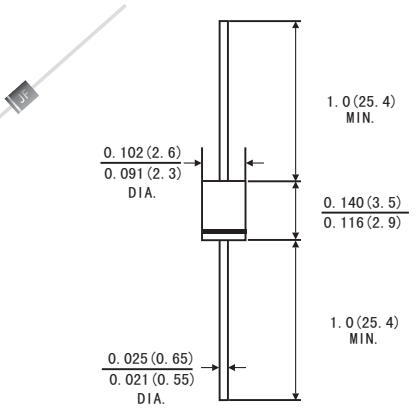
## SCHOTTKY BARRIER RECTIFIER

Reverse Voltage - 20 to 200 Volts
Forward Current - 1.0Ampere

## FEATURES

- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Metal silicon junction ,majority carrier conduction
- Low power loss ,high efficiency
- High current capability ,Low forward voltage drop
- High surge capability
- For use in low voltage ,high frequency inverters, free wheeling ,and polarity protection applications
- High temperature soldering guaranteed:260℃/10 seconds at terminals
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

R-1




Dimensions in inches and (millimeters)

## MECHANICAL DATA

- *Case*: R-1 molded plastic body
- *Terminals*: Plated axial leads, solderable per MIL-STD-750, method 2026
  *Polarity*: color band denotes cathode end
- *Mounting Position*: Any
- *Weight*: 0.007ounce,0.20 gram

## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

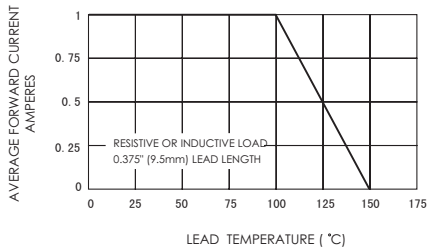
(Ratings at 25℃ ambient temperature unless otherwise specified ,Single phase ,half wave ,resistive or inductive load. For capacitive load,derate by 20%.)

| | Symbols | 1S20 | 1S30 | 1S40 | 1S50 | 1S60 | 1S80 | 1S100 | 1S150 | 1S200 | Units |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Maximum repetitive peak reverse voltage | $V_{RRM}$ | 20 | 30 | 40 | 50 | 60 | 80 | 100 | 150 | 200 | Volts |
| Maximum RMS voltage | $V_{RMS}$ | 14 | 21 | 28 | 35 | 42 | 57 | 71 | 105 | 140 | Volts |
| Maximum DC blocking voltage | $V_{DC}$ | 20 | 30 | 40 | 50 | 60 | 80 | 100 | 150 | 200 | Volts |
| Maximum average forward rectified current 0.375"(9.5mm) lead length(see Fig. 1 ) | $I_{(AV)}$ | 1.0 | | | | | | | | | Amp |
| Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC method) | $I_{FSM}$ | 40.0 | | | | | | | | | Amps |
| Maximum instantaneous forward voltage at 1.0 A(Note 1 ) | $V_F$ | 0.55 | | | 0.70 | | 0.85 | | 0.90 | 0.95 | Volts |
| Maximum instantaneous reverse current at rated DC blocking voltage(Note 1) $T_A$=25℃ | $I_R$ | 0.2 | | | | | | | | | mA |
| $T_A$=100℃ | | 10 | | | | | | | | | |
| Typical junction capacitance(Note 3) | $C_J$ | 110 | | | | | | | | | pF |
| Typical thermal resistance(Note 2) | $R_{\theta JA}$ | 50.0 | | | | | | | | | ℃/W |
| Operating junction temperature range | $T_J$ | -65 to+150 | | | | | | | | | ℃ |
| Storage temperature range | $T_{STG}$ | -65 to+150 | | | | | | | | | ℃ |

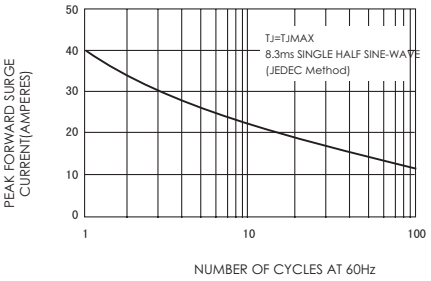
*Notes*: 1.Pulse test: 300 μs pulse width,1% duty cycle
2.Thermal resistance (from junction to ambient)Vertical P.C.B. mounted , 0.5"(12.7mm)lead length
3.Measured at 1.0MHz and reverse voltage of 4.0 volts

# RATINGS AND CHARACTERISTIC CURVES 1S20 THRU 1S200

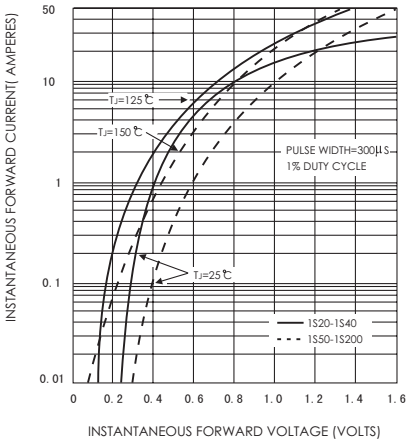
## FIG.1-FORWARD CURRENT DERATING CURVE



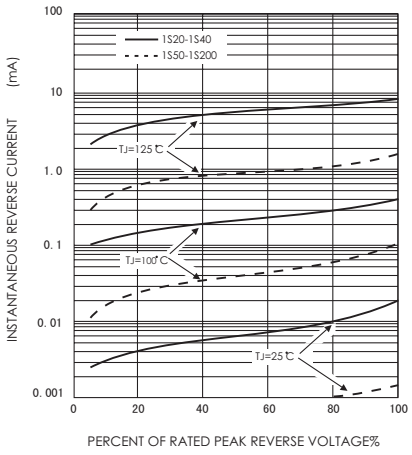

## FIG.2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT



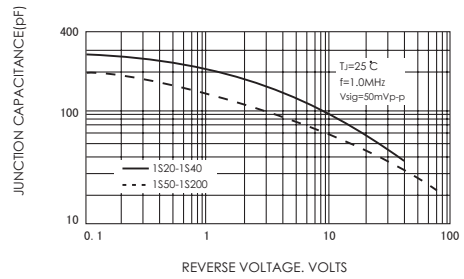

## FIG.3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

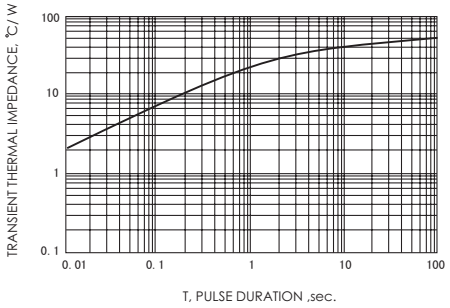



## FIG.4-TYPICAL REVERSE CHARACTERISTICS




## FIG.5-TYPICAL JUNCTION CAPACITANCE




## FIG.6-TYPICAL TRANSIENT THERMAL IMPEDANCE