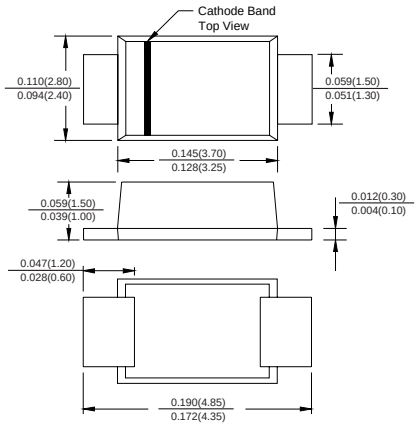
# US1AAF--US1MAF
# Surface Mount Rectifiers

## FEATURES

- For surface mount applications
- Low profile package
- Easy pick and place
- Ultrafast recovery times for high efficiency
- Low forward voltage，low power loss
- Built-in strain relief，ideal for automated placement
- High temperature soldering: 260℃/10 seconds on terminals
- Plastic package has underwriters laboratories flammability classification 94V-0

SMAF




*Dimensions in inches and (millimeters)*

## MECHANICAL DATA

- Case: JEDEC SMAFL,molded plastic body over passivated chip
- Terminals: Solder Plated, solderable per MIL-STD-750,Method 2026
- Polarity: Color band denotes cathode end

## Maximum Ratings (@TA = 25°C unless otherwise specified)

| Parameter | Symbol | US1AAF | US1BAF | US1DAF | US1GAF | US1JAF | US1KAF | US1MAF | |
|---|---|---|---|---|---|---|---|---|---|
| **Marking code** | | **US1A** | **US1B** | **US1D** | **US1G** | **US1J** | **US1K** | **US1M** | **UNITS** |
| Maximum recurrent peak reverse voltage | $V_{RRM}$ | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | V |
| Maximum RMS voltage | $V_{RWS}$ | 35 | 70 | 140 | 280 | 420 | 560 | 700 | V |
| Maximum DC blocking voltage | $V_{DC}$ | 50 | 100 | 200 | 400 | 600 | 800 | 1000 | V |
| Maximum average forward rectified current at $T_L$=110℃ | $I_{F(AV)}$ | 1.0 | | | | | | | A |
| Peak forward surge current 8.3ms single half sine-wave superimposed on rated load(JEDEC Method) | $I_{FSM}$ | 30 | | | | | | | A |

## Thermal Characteristics

| Characteristic | Symbol | US1AAF | US1BAF | US1DAF | US1GAF | US1JAF | US1KAF | US1MAF | UNITS |
|---|---|---|---|---|---|---|---|---|---|
| Typical junction capacitance at 4.0V,1MHZ | $C_J$ | 20 | | | | 15 | | | p F |
| Maximum thermal resistance (NOTE1) | $R_{\theta JA}$<br>$R_{\Theta JL}$ | 55<br>20 | | | | | | | ℃/W |
| Operating temperature range | $T_J$ | -55------- +150 | | | | | | | ℃ |
| Storage temperature range | $T_{STG}$ | -55------- +150 | | | | | | | ℃ |

## Electrical Characteristics (@TA = 25°C unless otherwise specified)

| Characteristic | Symbol | US1AAF | US1BAF | US1DAF | US1GAF | US1JAF | US1KAF | US1MAF | UNITS |
|---|---|---|---|---|---|---|---|---|---|
| Maximum instantaneous forward voltage at 1.0A | $V_F$ | 1.0 | | | 1.30 | 1.7 | | | V |
| Maximum DC reverse current @$T_A$=25℃ at rated DC blocking voltage @$T_A$=125℃ | $I_R$ | 5.0<br>100.0 | | | | | | | μ A |
| Maximum reverse recovery time at $I_F$=0.5A $I_R$=1.0A $I_{rr}$=0.25A | $t_{rr}$ | 50 | | | | 75 | | | ns |

NOTE: 1.P.C.B.mounted on 0.2X0.2"(5.0X5.0mm) copper pad area

**FIG.1 – FORWARD CURRENT DERATING CURVE**

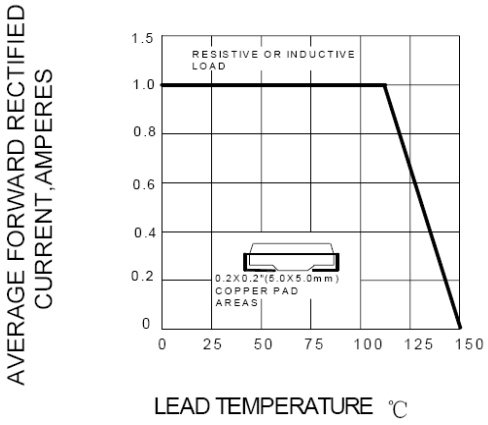



**FIG.2 – MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT**

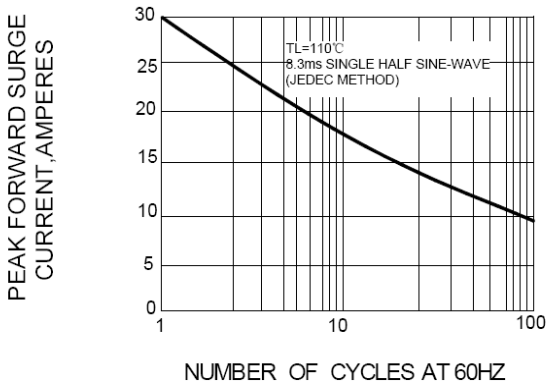



**FIG.3 – TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS**

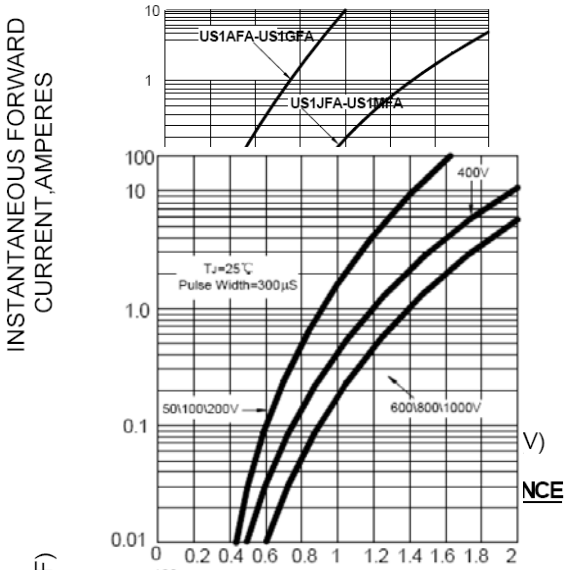
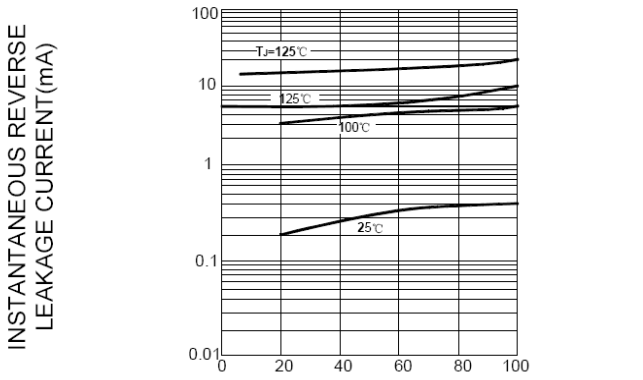



**FIG.4 -- TYPICAL REVERSE CHARACTERISTICS**




**NCE**

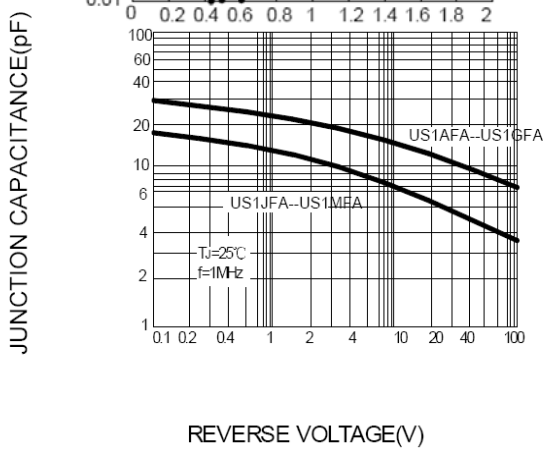
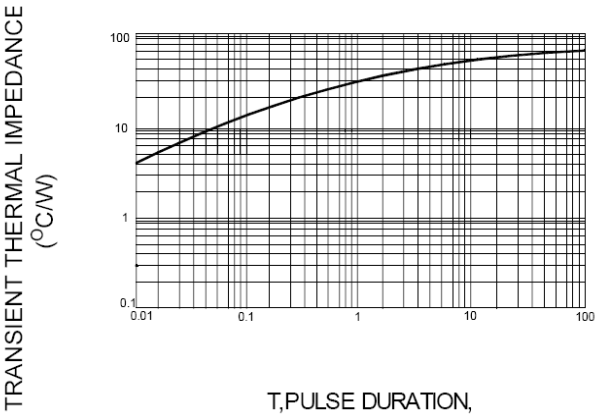



**FIG.6 – TYPICAL TRANSIENT THERMAL IMPEDANCE**




| PACKAGE | SPQ/PCS | CARTON SPQ/PCS | CARTON SIZE/CM | CARTON GW/KG | CARTON NW/KG |
|---|---|---|---|---|---|
| SMAF | 3000/REEL | 120000 | 30.5X30.5X42.5 | 12.00 | 11.00 |
| PACKAGE | SPQ/PCS | CARTON SPQ/PCS | CARTON SIZE/CM | CARTON GW/KG | CARTON NW/KG |
| SMAF | 5000/REEL | 100000 | 30.5X30.5X42.5 | 10.00 | 9.00 |