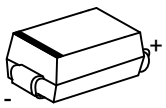
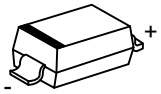
# ES1A THRU ES1J

**DIODE**

## 1.0AMP SURFACE MOUNT GLASS SUPERFAST RECOVERY RECTIFIER



SMA
(JEDEC DO-214AC)



SOD-123

## ■ DESCRIPTION

The UTC **ES1A thru ES1J** is a surface mount glass superfast recovery rectifier, it uses UTC's advanced technology to provide customers with low power loss and high efficiency, etc.

## ■ FEATURES

* Low power loss
* High efficiency

## ■ ORDERING INFORMATION

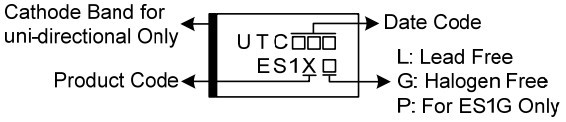
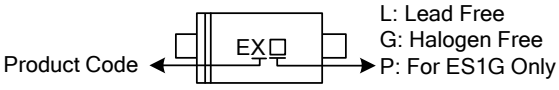
| Ordering Number | | Package | Pin Assignment | | Packing |
|---|---|---|---|---|---|
| Lead Free | Halogen Free | | 1 | 2 | |
| ES1AL-SMA-R | ES1AG-SMA-R | SMA | K | A | Tape Reel |
| ES1AL-CA2-R | ES1AG-CA2-R | SOD-123 | A | K | Tape Reel |
| ES1BL-SMA-R | ES1BG-SMA-R | SMA | K | A | Tape Reel |
| ES1BL-CA2-R | ES1BG-CA2-R | SOD-123 | A | K | Tape Reel |
| ES1CL-SMA-R | ES1CG-SMA-R | SMA | K | A | Tape Reel |
| ES1CL-CA2-R | ES1CG-CA2-R | SOD-123 | A | K | Tape Reel |
| ES1DL-SMA-R | ES1DG-SMA-R | SMA | K | A | Tape Reel |
| ES1DL-CA2-R | ES1DG-CA2-R | SOD-123 | A | K | Tape Reel |
| ES1EL-SMA-R | ES1EG-SMA-R | SMA | K | A | Tape Reel |
| ES1EL-CA2-R | ES1EG-CA2-R | SOD-123 | A | K | Tape Reel |
| ES1GL-SMA-R | ES1GP-SMA-R | SMA | K | A | Tape Reel |
| ES1GL-CA2-R | ES1GP-CA2-R | SOD-123 | A | K | Tape Reel |
| ES1JL-SMA-R | ES1JG-SMA-R | SMA | K | A | Tape Reel |
| ES1JL-CA2-R | ES1JG-CA2-R | SOD-123 | A | K | Tape Reel |

Note: Pin Assignment: A: Anode K: Cathode

ES1AG-SMA-R
(1)Packing Type
(2)Package Type
(3)Green Package

(1) R: Tape Reel
(2) SMA: SMA, CA2: SOD-123
(3) L: Lead Free, G: Halogen Free and Lead Free
P: Halogen Free and Lead Free For ES1G only

## ■ MARKING

| SMA | SOD-123 |
|---|---|
|  |  |

## ■ ABSOLUTE MAXIMUM RATINGS ($T_A$=25°C unless otherwise specified)

Single phase half-wave 60Hz, resistive or inductive load, for capacitive load current derate by 20%.

| PARAMETER | SYMBOL | RATINGS | | | | | | | UNIT |
|---|---|---|---|---|---|---|---|---|---|
| | | ES1A | ES1B | ES1C | ES1D | ES1E | ES1G | ES1J | |
| Peak Repetitive Reverse Voltage | $V_{RRM}$ | 50 | 100 | 150 | 200 | 300 | 400 | 600 | V |
| DC Blocking Voltage | $V_{DC}$ | 50 | 100 | 150 | 200 | 300 | 400 | 600 | V |
| RMS Voltage | $V_{RMS}$ | 35 | 70 | 105 | 140 | 210 | 280 | 420 | V |
| Average Rectified Output Current $T_A$=75°C | $I_O$ | 1.0 | | | | | | | A |
| Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load | $I_{FSM}$ | 30 | | | | | | | A |
| Operating Junction Temperature Range | $T_J$ | -55 ~ +150 | | | | | | | °C |
| Storage Temperature Range | $T_{STG}$ | -55 ~ +150 | | | | | | | °C |

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

## ■ THERMAL DATA

| PARAMETER | | SYMBOL | RATINGS | UNIT |
|---|---|---|---|---|
| Junction to Ambient (Note 3) | SMA | $\theta_{JA}$ | 60 | °C/W |
| | SOD-123 | | 160 | °C/W |

## ■ ELECTRICAL CHARACTERISTICS ($T_A$=25°C unless otherwise specified)

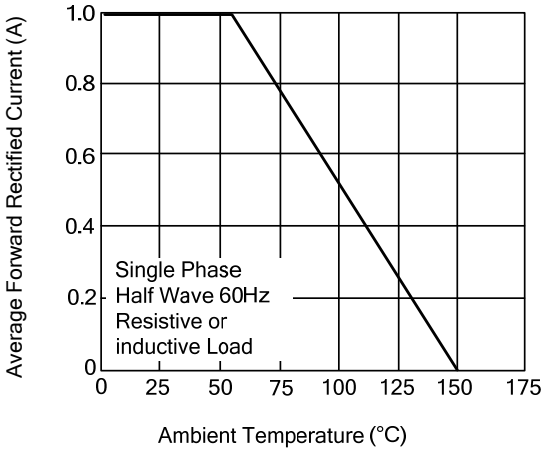
Ratings at 25°C ambient temperature unless otherwise specified.
Single phase half-wave 60Hz, resistive or inductive load, for capacitive load current derate by 20%.

| PARAMETER | SYMBOL | TEST CONDITIONS | RATINGS | | | | | | | UNIT |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | ES1A | ES1B | ES1C | ES1D | ES1E | ES1G | ES1J | |
| Forward Voltage | $V_{FM}$ | $I_F$=1.0A | 0.95 | 0.95 | 0.95 | 0.95 | 1.25 | 1.25 | 1.25 | V |
| Peak Reverse Current at Rated DC Blocking Voltage | $I_R$ | $T_A$=25°C | 5.0 | | | | | | | μA |
| | | $T_A$=100°C | 50 | | | | | | | μA |
| Reverse Recovery Time (Note 1) | $t_{rr}$ | | 35 | | | | | | | ns |
| Junction Capacitance (Note 2) | $C_J$ | | 15 | | | | | | | pF |

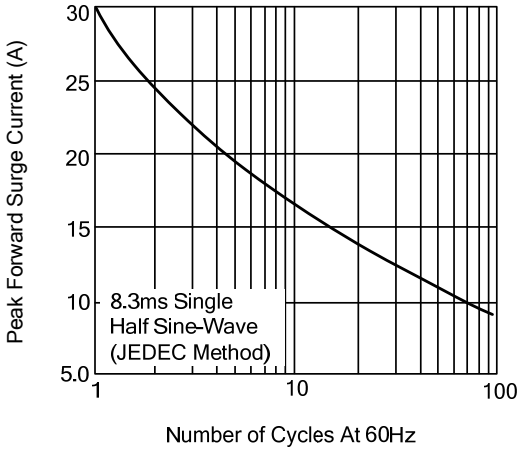
Notes: 1. Reverse recovery condition $I_F$=0.5A, $I_R$=1.0A, $I_{rr}$=0.25A.
2. Measured at 1MHz and applied reverse voltage of 4.0V D.C.
3. P.C.B. mounted with 8.0mm$^2$ (.013mm thick) copper pad areas.

## ■ TYPICAL CHARACTERISTICS

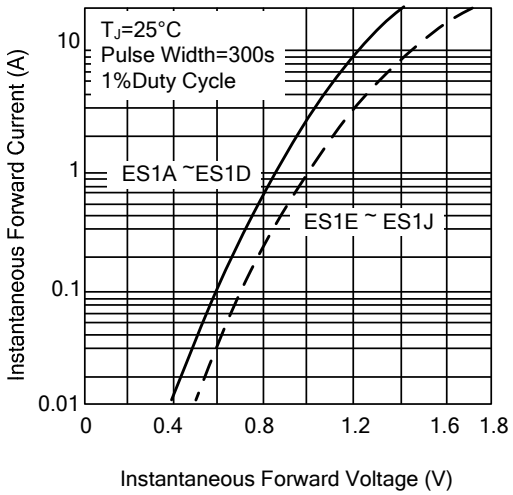
Forward Current Derating Curve



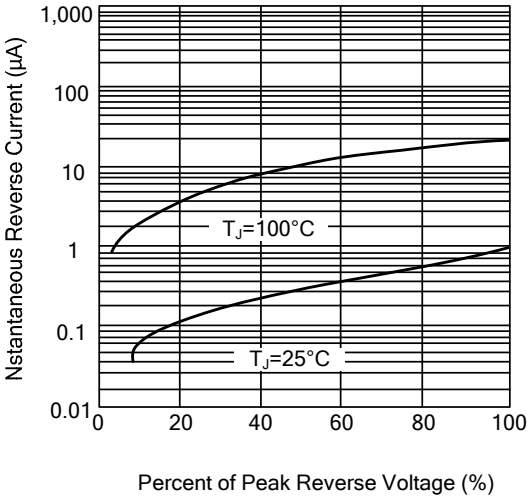

Maximum Non-Repetitive Peak Forward Surge Current



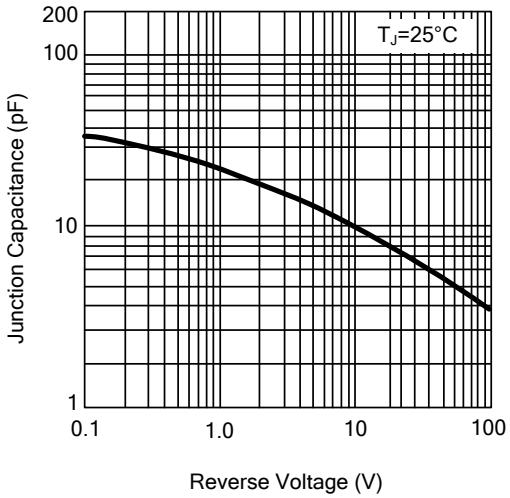

Typical Instantaneous Forward Characteristics




Typical Reverse Characteristics




Typical Junction Capacitance




Typical Transient Thermal Impedance