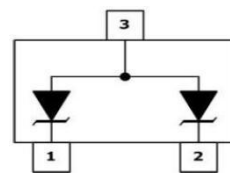


Features

- ◆ 300 Watts peak pulse power (tp = 8/20μs)
- ◆ Transient protection for high speed data lines to IEC 61000-4-2 (ESD) ±30kV (air), ±30kV (contact) IEC 61000-4-4 (EFT) 40A (5/50ns)
- ◆ Working voltages : 3V,5V,12V,15V,24V
- ◆ Protects two bidirectional line
- ◆ Low operating and clamping voltages
- ◆ Solid-state silicon avalanche technology



SOT-23

Applications

- ◆ Notebooks, Desktops, Servers and Video Graphics Cards
- ◆ USB Power & Data Line Protection
- ◆ Monitors and Flat Panel Displays
- ◆ I²C Bus Protection
- ◆ Portable Instrumentation
- ◆ Set Top Box

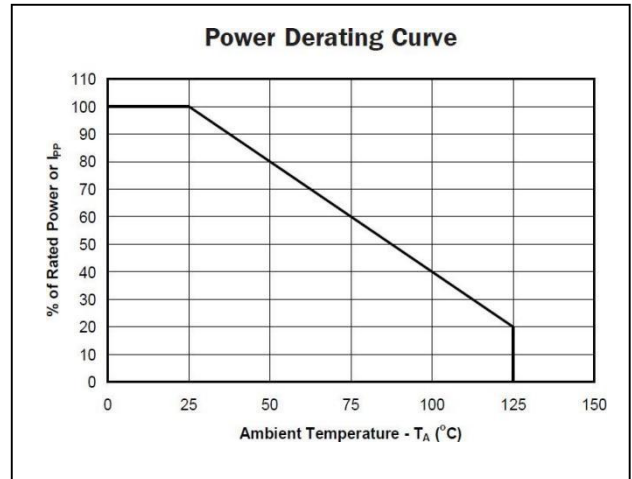
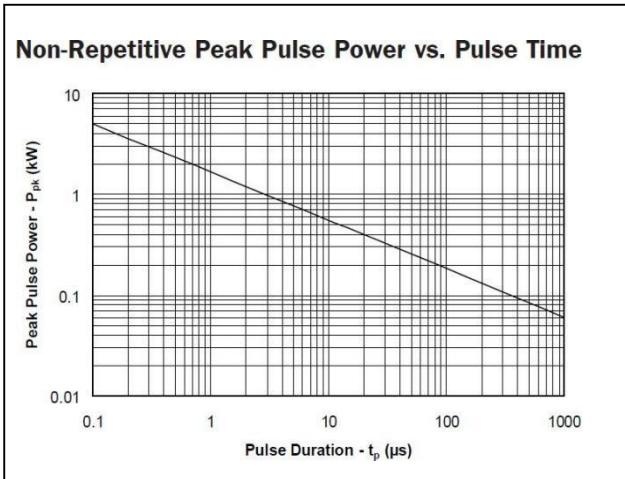
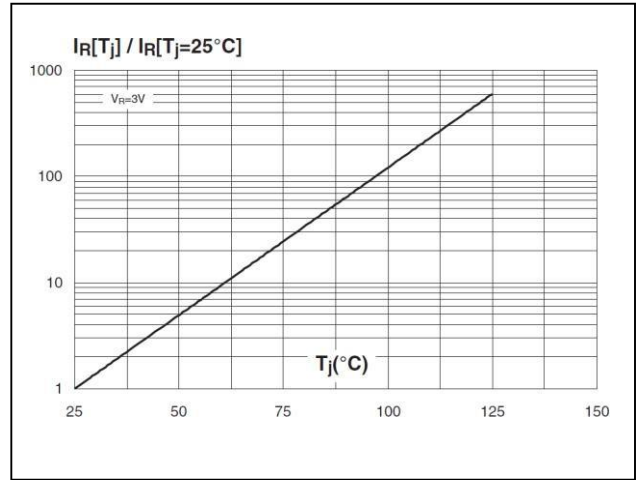
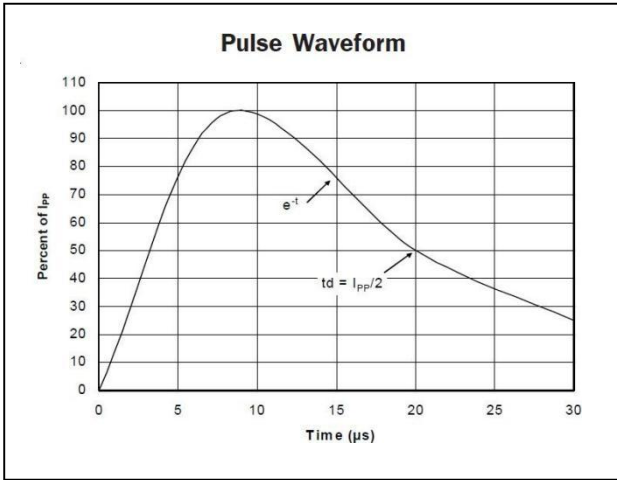
Maximum Rating @ Ta=25°C unless otherwise specified

| Symbol | Parameter | Ratings | Units |
|------------------|--------------------------------|-------------|-------|
| P _{PK} | Peak Pulse Power (tp = 8/20μs) | 300 | Watts |
| T _L | Lead Soldering Temperature | 260(10sec.) | °C |
| T _J | Operating Temperature | -55 to +125 | °C |
| T _{STG} | Storage Temperature | -55 to +150 | °C |

Electrical Characteristics @ Ta=25°C unless otherwise

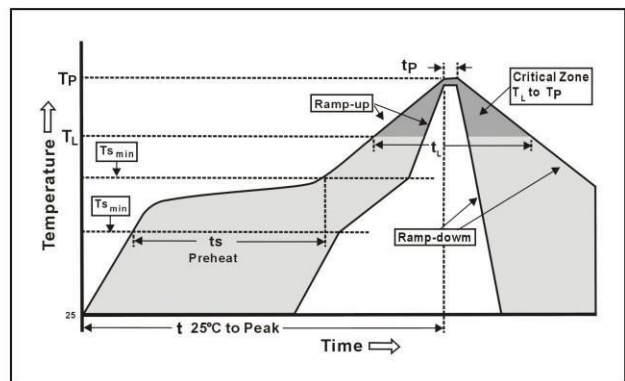
| P/N | V _{RWM} (V) (max.) | V _B (V) (min.) | I _T (mA) | V _{C@1A} (V) (max.) | V _C (V) (max.) (@A) | I _R (μA) (max.) | C _T (pF) (max.) |
|--------------|-----------------------------------|---------------------------------|------------------------|------------------------------------|--------------------------------------|----------------------------------|----------------------------------|
| KNESD3V3S2UT | 3.3 | 4 | 1 | 7.0 | 14 20 | 40 | 450 |
| KNESD5V2S2UT | 5 | 6 | 1 | 9.8 | 18 17 | 10 | 300 |
| KNESD12VS2UT | 12 | 13.3 | 1 | 19 | 32 11 | 1 | 130 |
| KNESD15VS2UT | 15 | 16.7 | 1 | 24 | 38 10 | 1 | 120 |
| KNESD24VS2UT | 24 | 26.7 | 1 | 43 | 52 7 | 1 | 80 |

Typical Characteristics @ Ta=25°C unless otherwise specified

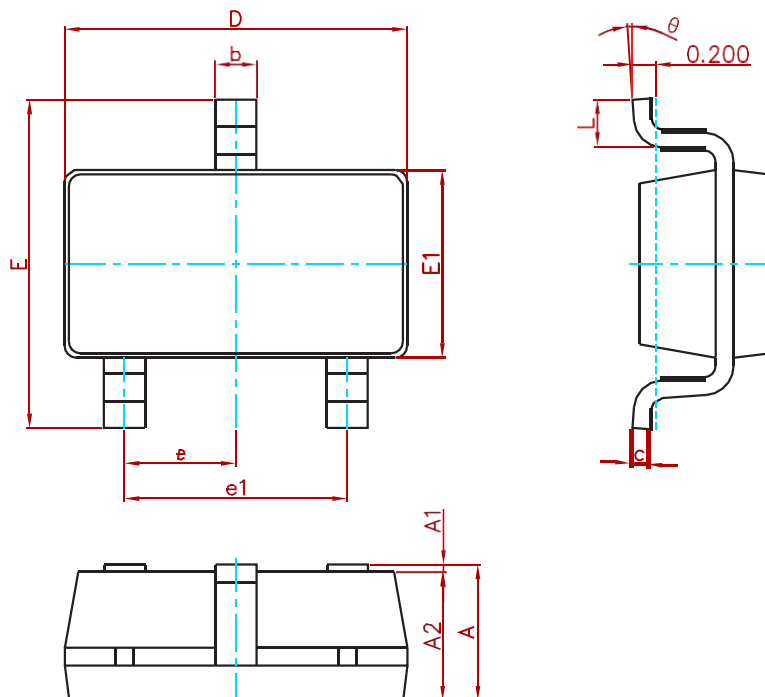


Soldering Parameters

| | | |
|--|--|-------------------------|
| Reflow Condition | | Fb – Free assembly |
| Pre Heat | - Temperature Min (T _{s(Min)}) | 150°C |
| | - Temperature Max (T _{s(Max)}) | 200°C |
| | - Time (Min to max) (t _s) | 60 – 180 secs |
| Average ramp up rate (Liquidus) Temp (T _l) to peak | | 3°C/second Max |
| T _{s(Max)} to T _L - Ramp-up Rate | | 3°C/second Max |
| Reflow | - Temperature (T _l) (Liquidus) | 217°C |
| | - Temperature (t _l) | 60 – 150 seconds |
| Peak Temperature (T _p) | | 250 ^{+0/-5} °C |
| Time within 5°C of actual peak Temperature (t _p) | | 20 – 40 seconds |
| Ramp-down Rate | | 6°C/second Max |
| Time 25°C to peak Temperature (T _p) | | 8 minutes Max. |
| Do not exceed | | 260°C |

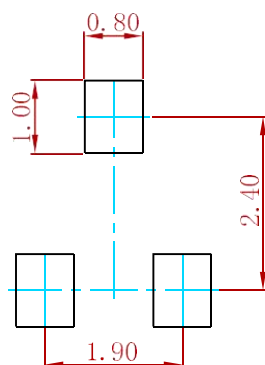


PACKAGE MECHANICAL DATA



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 1.050 | 1.250 | 0.041 | 0.049 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 1.050 | 1.150 | 0.041 | 0.045 |
| b | 0.300 | 0.500 | 0.012 | 0.020 |
| c | 0.100 | 0.200 | 0.004 | 0.008 |
| D | 2.820 | 3.020 | 0.111 | 0.119 |
| E1 | 1.500 | 1.700 | 0.059 | 0.067 |
| E | 2.650 | 2.950 | 0.104 | 0.116 |
| e | 0.950(BSC) | | 0.037(BSC) | |
| e1 | 1.800 | 2.000 | 0.071 | 0.079 |
| L | 0.300 | 0.600 | 0.012 | 0.024 |
| θ | 0° | 8° | 0° | 8° |

Suggested Pad Layout



- Note:
1. Controlling dimension: in millimeters.
 2. General tolerance: $\pm 0.05\text{mm}$.
 3. The pad layout is for reference purposes only.

REEL SPECIFICATION

| P/N | PKG | QTY |
|--------------|--------|------|
| KNESDXXXS2UT | SOT-23 | 3000 |