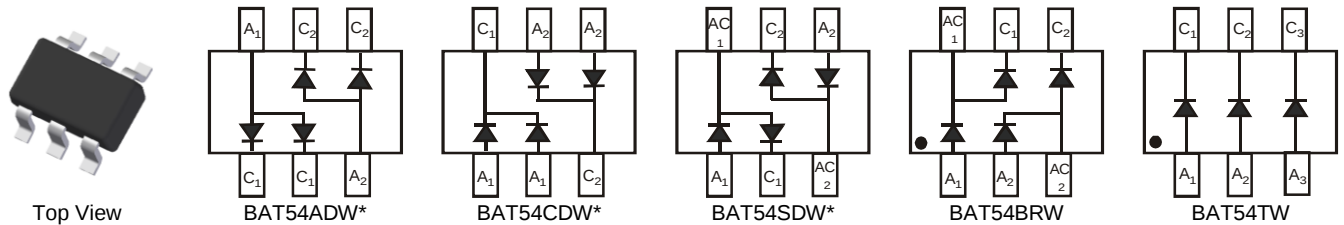


## Features

- Low Forward Voltage Drop
- Fast Switching
- Ultra-Small Surface Mount Package
- PN Junction Guard Ring for Transient and ESD Protection
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Devise (Note 3)**

## Mechanical Data

- Case: SOT-363
- Case Material: Molded Plastic.  
UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Solderable per MIL-STD-202, Method 208
- Lead Free Plating (Matte Tin Finish annealed over Alloy 42 Leadframe). (E3)
- Weight: 0.006 grams (Approximate)



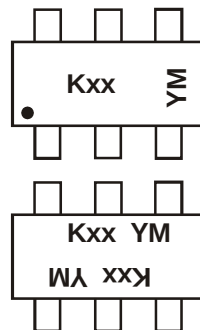
\*Symmetrical configuration, no orientation indicator.

## Ordering Information (Note 4)

| Part Number  | Case    | Packaging         |
|--------------|---------|-------------------|
| BAT54ADW-7-F | SOT-363 | 3,000/Tape & Reel |
| BAT54CDW-7-F | SOT-363 | 3,000/Tape & Reel |
| BAT54SDW-7-F | SOT-363 | 3,000/Tape & Reel |
| BAT54BRW-7-F | SOT-363 | 3,000/Tape & Reel |
| BAT54TW-7-F  | SOT-363 | 3,000/Tape & Reel |

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
  2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  4. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

## Marking Information



Kxx = Product Type Marking Code  
 For Symmetrical Configuration, No Orientation Indicator

KL6 = BAT54ADW  
 KL7 = BAT54CDW  
 KL8 = BAT54SDW  
 KLB = BAT54BRW  
 KLA = BAT54TW

YM = Date Code Marking  
 Y = Year (ex: D = 2016)  
 M = Month (ex: 9 = September)

### Date Code Key

| Year | 2001 | 2002 | ... | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
|------|------|------|-----|------|------|------|------|------|------|------|------|------|------|------|------|
| Code | M    | N    | ... | Y    | Z    | A    | B    | C    | D    | E    | F    | G    | H    | I    | J    |

| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Code  | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | O   | N   | D   |

**Maximum Ratings** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

| Characteristic                                     | Symbol    | Value | Unit |
|----------------------------------------------------|-----------|-------|------|
| Peak Repetitive Reverse Voltage                    | $V_{RRM}$ | 30    | V    |
| Working Peak Reverse Voltage                       | $V_{RWM}$ |       |      |
| DC Blocking Voltage                                | $V_R$     |       |      |
| Forward Continuous Current (Note 5)                | $I_F$     | 200   | mA   |
| Repetitive Peak Forward Current (Note 5)           | $I_{FRM}$ | 300   | mA   |
| Forward Surge Current (Note 5) @ $t < 1.0\text{s}$ | $I_{FSM}$ | 600   | mA   |

**Thermal Characteristics**

| Characteristic                                       | Symbol          | Value       | Unit               |
|------------------------------------------------------|-----------------|-------------|--------------------|
| Power Dissipation (Note 5)                           | $P_D$           | 200         | mW                 |
| Thermal Resistance, Junction to Ambient Air (Note 5) | $R_{\theta JA}$ | 625         | $^\circ\text{C/W}$ |
| Operating and Storage Temperature Range              | $T_J, T_{STG}$  | -65 to +125 | $^\circ\text{C}$   |

**Electrical Characteristics** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

| Characteristic                     | Symbol      | Min | Typ | Max                               | Unit          | Test Condition                                                                                                   |
|------------------------------------|-------------|-----|-----|-----------------------------------|---------------|------------------------------------------------------------------------------------------------------------------|
| Reverse Breakdown Voltage (Note 6) | $V_{(BR)R}$ | 30  | —   | —                                 | V             | $I_R = 100\mu\text{A}$                                                                                           |
| Forward Voltage (Note 6)           | $V_F$       | —   | —   | 240<br>320<br>400<br>500<br>1,000 | mV            | $I_F = 0.1\text{mA}$<br>$I_F = 1\text{mA}$<br>$I_F = 10\text{mA}$<br>$I_F = 30\text{mA}$<br>$I_F = 100\text{mA}$ |
| Reverse Leakage Current (Note 6)   | $I_R$       | —   | —   | 2.0                               | $\mu\text{A}$ | $V_R = 25\text{V}$                                                                                               |
| Total Capacitance                  | $C_T$       | —   | —   | 10                                | pF            | $V_R = 1.0\text{V}, f = 1.0\text{MHz}$                                                                           |
| Reverse Recovery Time              | $t_{rr}$    | —   | —   | 5.0                               | ns            | $I_F = 10\text{mA}$ through $I_R = 10\text{mA}$ to $I_R = 1.0\text{mA}, R_L = 100\Omega$                         |

Notes: 5. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch; pad layout, which can be found on our website at <http://www.diodes.com/package-outlines.html>.  
 6. Short duration pulse test used to minimize self-heating effect.

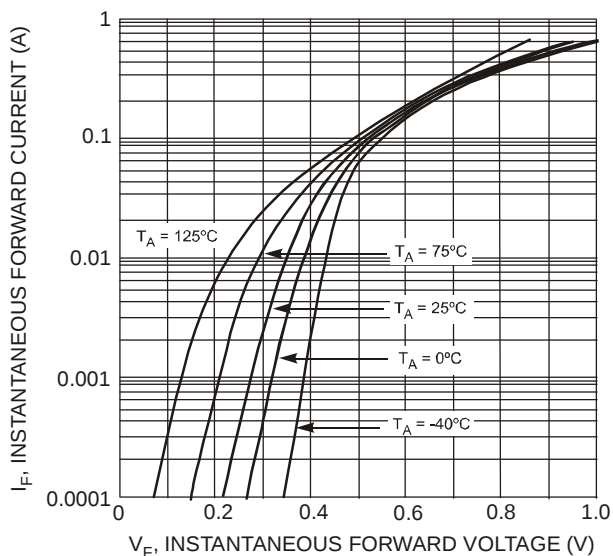


Fig. 1 Typical Forward Characteristics

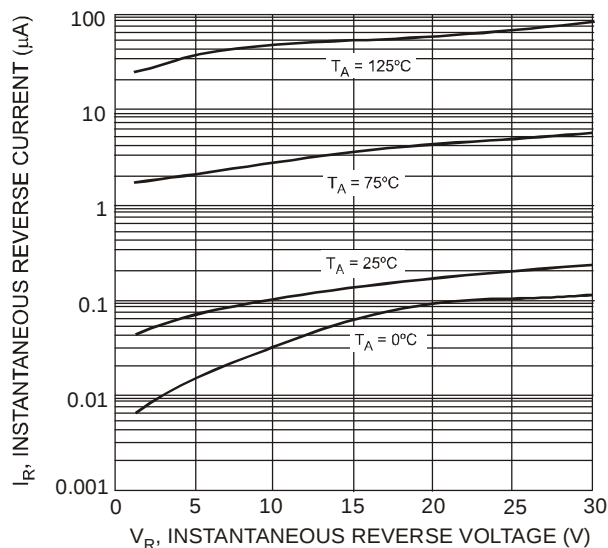


Fig. 2 Typical Reverse Characteristics

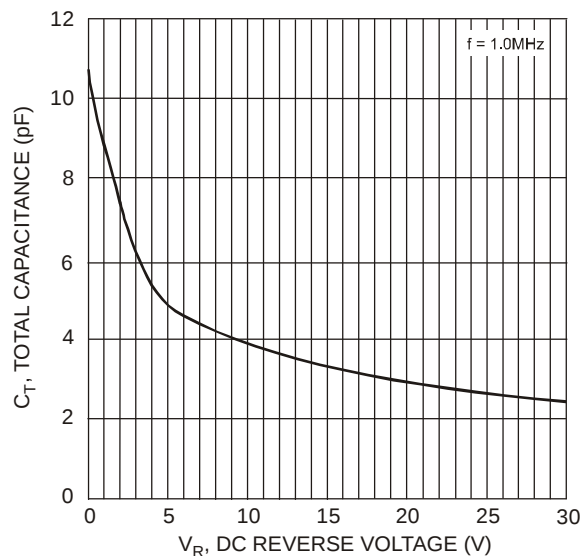


Fig. 3 Total Capacitance vs. Reverse Voltage

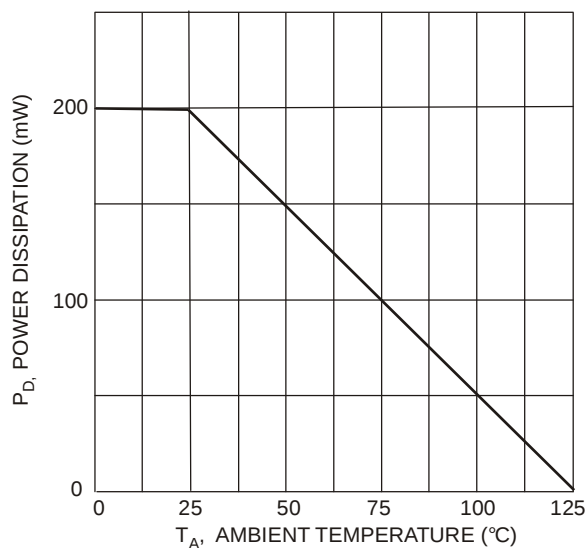
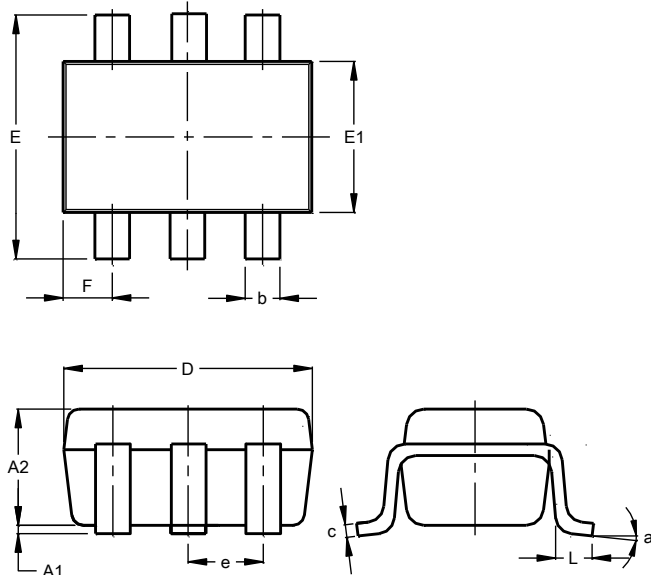


Fig. 4 Power Derating Curve

## Package Outline Dimensions

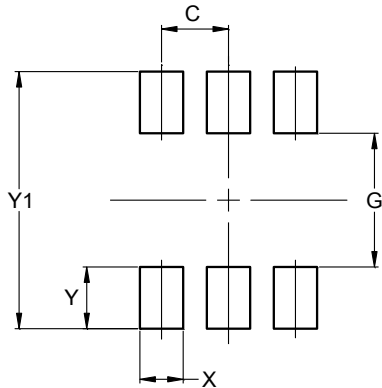
Please see <http://www.diodes.com/package-outlines.html> for the latest version.



| SOT363               |              |              |       |
|----------------------|--------------|--------------|-------|
| Dim                  | Min          | Max          | Typ   |
| A1                   | 0.00         | 0.10         | 0.05  |
| A2                   | 0.90         | 1.00         | 1.00  |
| b                    | 0.10         | 0.30         | 0.25  |
| c                    | 0.10         | 0.22         | 0.11  |
| D                    | 1.80         | 2.20         | 2.15  |
| E                    | 2.00         | 2.20         | 2.10  |
| E1                   | 1.15         | 1.35         | 1.30  |
| e                    | 0.650 BSC    |              |       |
| F                    | 0.40         | 0.45         | 0.425 |
| L                    | 0.25         | 0.40         | 0.30  |
| a                    | 0 $^{\circ}$ | 8 $^{\circ}$ | --    |
| All Dimensions in mm |              |              |       |

## Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.



| Dimensions | Value<br>(in mm) |
|------------|------------------|
| <b>C</b>   | 0.650            |
| <b>G</b>   | 1.300            |
| <b>X</b>   | 0.420            |
| <b>Y</b>   | 0.600            |
| <b>Y1</b>  | 2.500            |

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