



# THE DATASHEET OF BAT54BRW-7



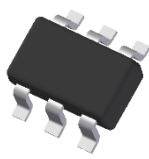
### Features

- 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" Device (Note 3)**
- **An automotive-compliant part is available under separate datasheet ([BAT54SDWQ/TWQ](#))**

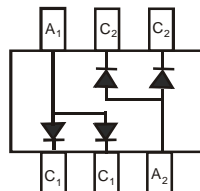
### Mechanical Data

- Package: SOT363
- Package Material: Molded Plastic, UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208(3)
- Weight: 0.006 grams (Approximate)

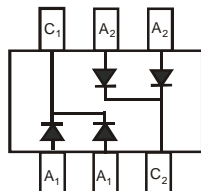
#### SOT363 (Standard)



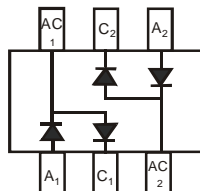
Top View



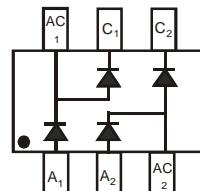
BAT54ADW\*



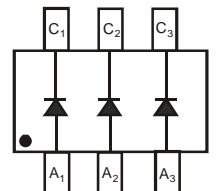
BAT54CDW\*



BAT54SDW\*



BAT54BRW



BAT54TW

\*Symmetrical configuration, no orientation indicator.

### Ordering Information (Note 4)

Part Number	Package	Packing	
		Qty.	Carrier
BAT54ADW-7-F	SOT363 (Standard)	3,000	Tape & Reel
BAT54CDW-7-F	SOT363 (Standard)	3,000	Tape & Reel
BAT54SDW-7-F	SOT363 (Standard)	3,000	Tape & Reel
BAT54BRW-7-F	SOT363 (Standard)	3,000	Tape & Reel
BAT54TW-7-F	SOT363 (Standard)	3,000	Tape & Reel

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
  2. See <https://www.diodes.com/quality/lead-free/> 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 <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

## Marking Information

Part Number	Marking Information	
BAT54BRW-7-F BAT54TW-7-F		<p>Kxx = Product Type Marking Code                      KLB = BAT54BRW                      KLA = BAT54TW</p> <p>YM &amp; YM = Date Code Marking                      Y &amp; Y = Year (ex: K = 2023)                      M = Month (ex: 9 = September)</p>
BAT54ADW-7-F BAT54CDW-7-F BAT54SDW-7-F		<p>Kxx = Product Type Marking Code                      KL6 = BAT54ADW                      KL7 = BAT54CDW                      KL8 = BAT54SDW</p> <p>YM &amp; YM = Date Code Marking                      Y &amp; Y = Year (ex: K = 2023)                      M = Month (ex: 9 = September)</p>

### Date Code Key

Year	2001	-	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Code	N	-	K	L	M	N	O	P	R	S	T	U

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<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	30	V
Working Peak Reverse Voltage	V <sub>RWM</sub>		
DC Blocking Voltage	V <sub>R</sub>		
Forward Continuous Current (Note 5)	I <sub>F</sub>	200	mA
Repetitive Peak Forward Current (Note 5)	I <sub>FRM</sub>	300	mA
Forward Surge Current (Note 5)	I <sub>FSM</sub>	600	mA

## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	P <sub>D</sub>	200	mW
Thermal Resistance, Junction to Ambient Air (Note 5)	R <sub>θJA</sub>	625	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150	°C

## Electrical Characteristics (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 6)	V <sub>(BR)R</sub>	30	—	—	V	I <sub>R</sub> = 100μA
Forward Voltage (Note 6)	V <sub>F</sub>	—	—	240 320 400 500 1,000	mV	I <sub>F</sub> = 0.1mA I <sub>F</sub> = 1mA I <sub>F</sub> = 10mA I <sub>F</sub> = 30mA I <sub>F</sub> = 100mA
Reverse Leakage Current (Note 6)	I <sub>R</sub>	—	—	2.0	μA	V <sub>R</sub> = 25V
Total Capacitance	C <sub>T</sub>	—	—	10	pF	V <sub>R</sub> = 1.0V, f = 1.0MHz
Reverse Recovery Time	t <sub>RR</sub>	—	—	5.0	ns	I <sub>F</sub> = 10mA through I <sub>R</sub> = 10mA to I <sub>R</sub> = 1.0mA, R <sub>L</sub> = 100Ω

Notes: 5. Device mounted on 1\*MRP FR-4 PC board, 2oz PCB, 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.

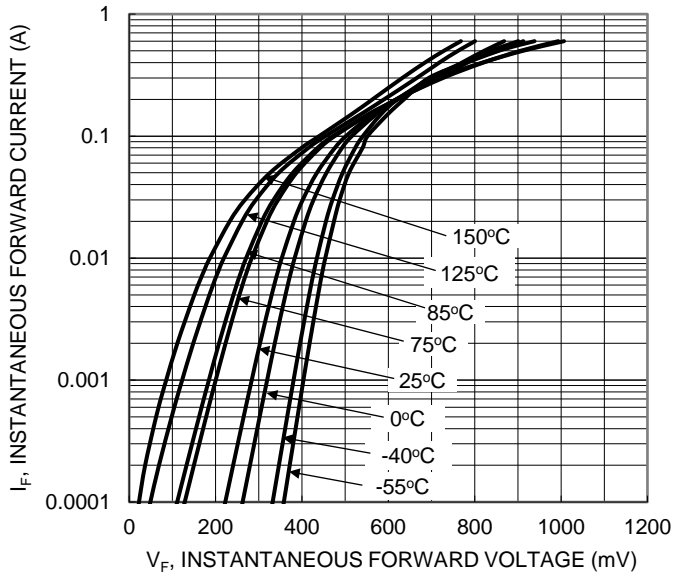


Fig.1 Typical Forward Characteristics

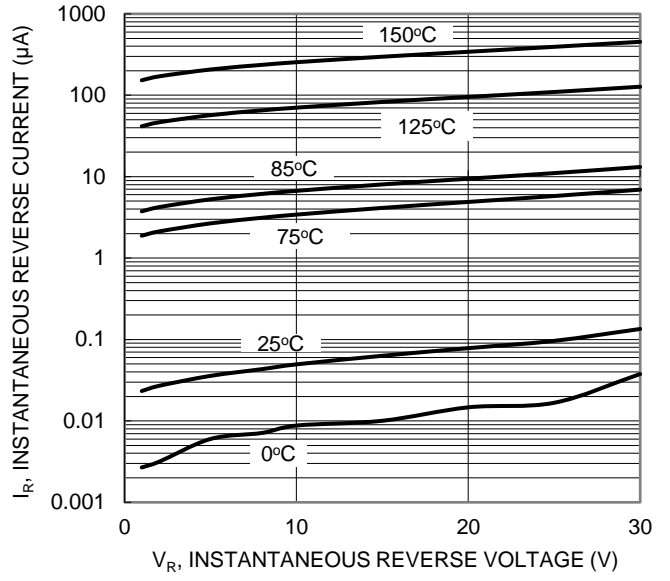


Fig.2 Typical Reverse Characteristics

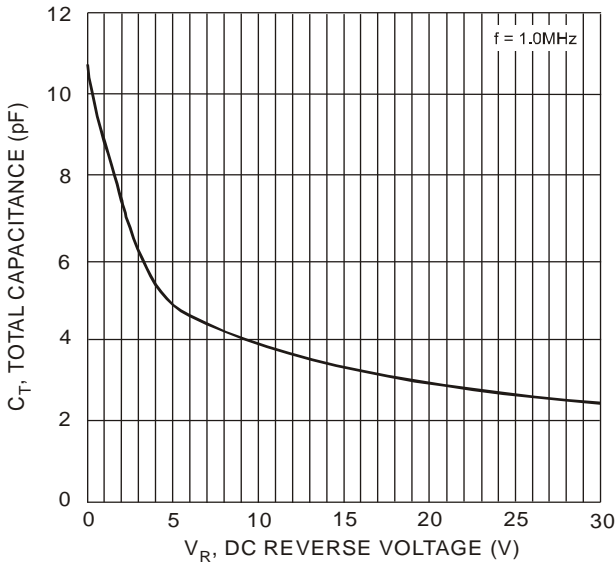


Fig.3 Total Capacitance vs. Reverse Voltage

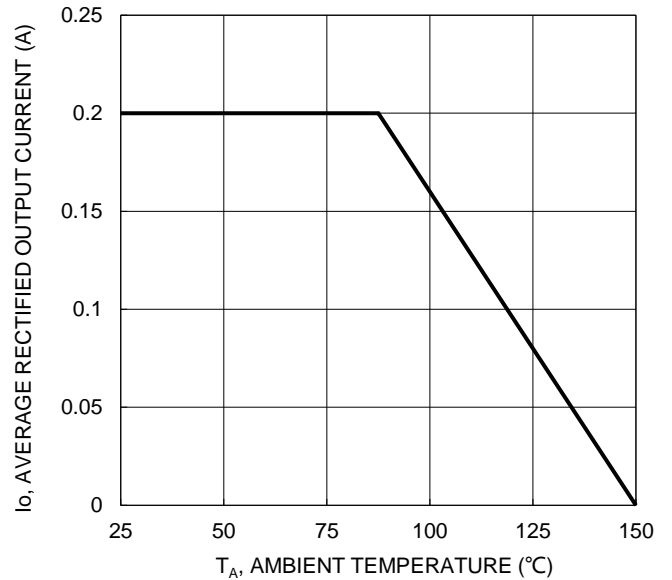
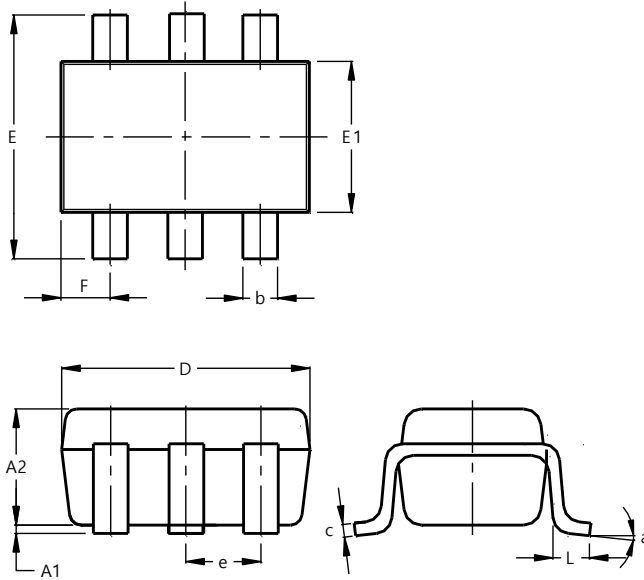


Fig.4 DC Forward Current Derating

**Package Outline Dimensions**

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

**SOT363 (Standard)**

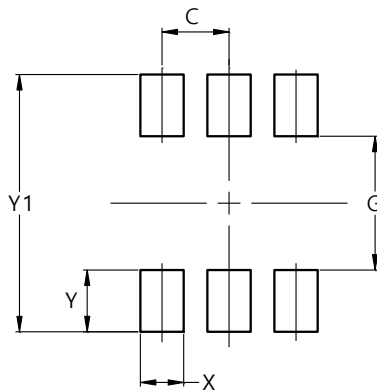


SOT363 (Standard)			
Dim	Min	Max	Typ
A1	0.00	0.10	0.05
A2	0.80	1.00	0.90
b	0.10	0.35	0.225
c	0.08	0.22	0.15
D	1.80	2.20	2.00
E	2.00	2.45	2.225
E1	1.15	1.35	1.25
e	--	--	0.65
F	0.25	0.45	0.35
L	0.25	0.46	0.355
a	0°	8°	--
<b>All Dimensions in mm</b>			

**Suggested Pad Layout**

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

**SOT363 (Standard)**



Dimensions	Value (in mm)
C	0.650
G	1.300
X	0.420
Y	0.600
Y1	2.500

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