CHT-AMALTHEA
Datasheet

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14-Dec-23
(Last Modification Date)

High Temperature 80V / 3A Dual Diode
Common Anode, Common Cathode and Dual Series

General description

The CHT-AMATHEA is a Medium Power 80V/3A dual-diode designed to achieve high performance in an extremely wide temperature range: typical operation temperature goes from -55°C to 225°C.

3 product flavours are available:

- Common Anode
- Common Cathode
- Dual Series

The CHT-AMALTHEA is available in a metal can TO-257 package.

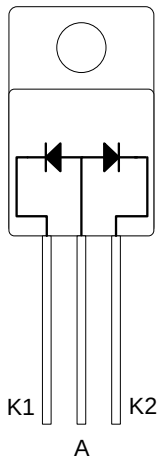
Features

- Specified from **-55 to +225°C** (Tj)
- Reverse voltage: **V_R = 80V** (max)
- Forward current**: I_F = 3A** (max @ 225°C (Tj) and VF = 1.85V)
- Forward voltage**: V_F = 1.7V** (typ. @ 25 (Tj) and IF = 3A)
- Junction capacitance: **C_j=36 pF** (typ. @ VR = 80V)
- Package: Hermetically-sealed metal can TO-257 - Isolated case

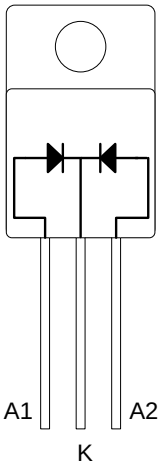
Applications

- Rectification
- Free-wheeling
- Clamping
- General purpose

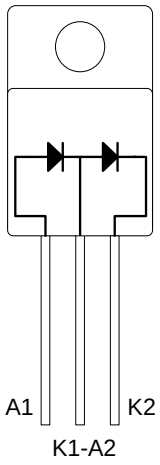
Pinout



Common Anode configuration



Common Cathode configuration



Dual Series configuration

Absolute Maximum Ratings

Reverse voltage V_R	80V
Peak Repetitive Forward current I_{FRM}	4A
Power dissipation T_c=25°C	12W
Junction temperature T_j	250°C

ESD Rating

Human Body Model	2kV

Stresses above those listed in "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress only rating and operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied. Frequent or extended exposure to absolute maximum rating conditions or above may affect device reliability.

Operating Conditions

Reverse voltage V_R	80V
Continuous forward current I_F	0A to 3A
Junction temperature	-55°C to +225°C

Electrical characteristics (single diode)

Unless otherwise stated, T_j = 25°C. **Bold** figures point out values valid over the whole temperature range (T_j = -55°C to +225°C).

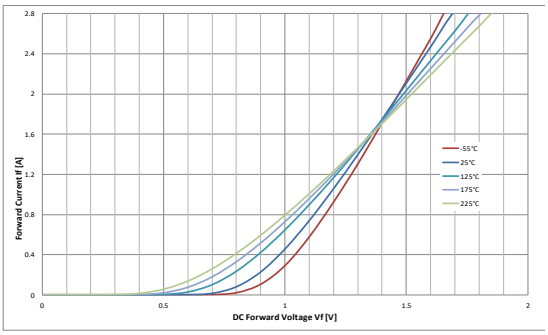
Parameter	Symbol	Condition	Min	Typ	Max	Unit
Forward voltage	V_F	I_F=2A, T_j=25°C		1.48		V
		I_F=2A, T_j=225°C		1.53		V
Reverse leakage current	I_R	V_R=80V, T_j=25°C		20		nA
		V_R=80V, T_j=225°C		40		µA
Breakdown reverse voltage	V_{BR}		**80**			V
Junction capacitance	Cj	V_R=20V; T_j=25°C; f=1MHz V_R=40V; T_j=25°C; f=1MHz V_R=80V; T_j=25°C; f=1MHz		56 48 36		pF
Total capacitive charge	Q_C	V_R = 80V; I_F = 1A di/dt= 50A/µs T_j=25°C		TBD		nC
Reverse recovery time[1]	t_{rr}	V_R = 80V I_F = 1A T_a = 25°C		59		ns
Peak reverse recovery current	I_{rrp}			920		mA
Repetitive Peak Forward Surge Current	I_{FRM}	t_P = 8.3ms Half-Sine Wave T_a = 25°C		TBD		A
Case isolation		V_A or V_K = 80V_{DC}	1			GΩ

Thermal Characteristics

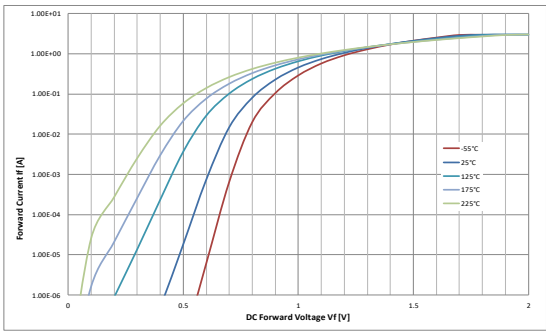
Parameter	Symbol	Condition	Min	Typ	Max	Unit
Thermal resistance (junction-to-case, TO-257)	Θ_{JC}			8		°C/W

[1] t_{rr} measured between points where current crosses zero and current reaches 10% of peak reverse recovery current

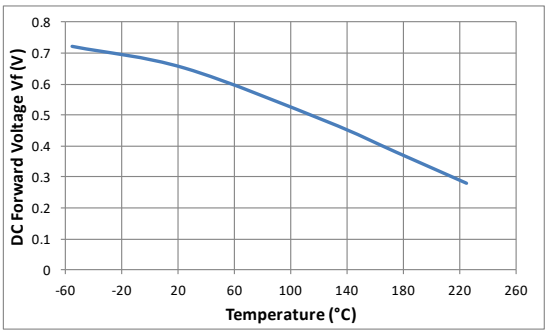
Typical Performance Characteristics (applicable to each diode)



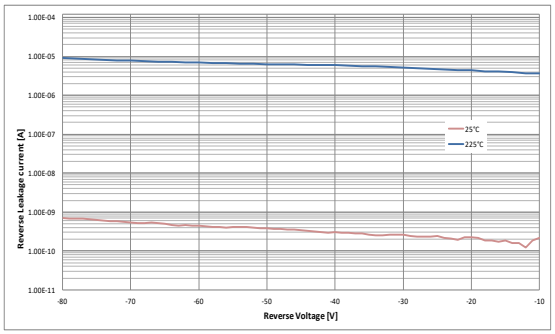
Forward current vs. forward voltage and temperature (linear scale)



Forward current vs. forward voltage and temperature (log_{10} scale)

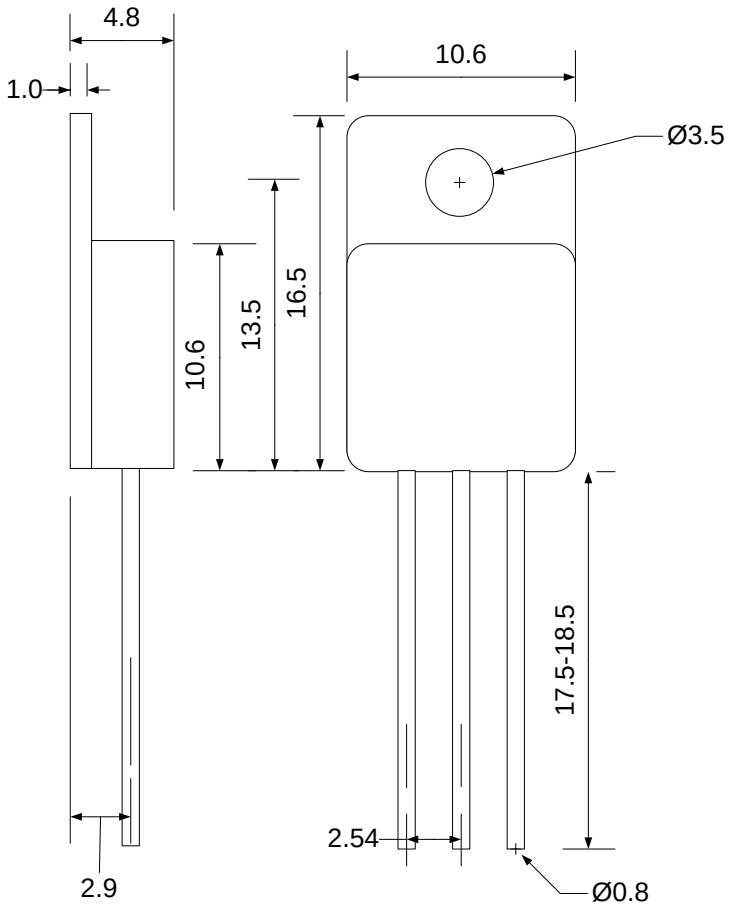


Forward voltage (at forward current I_F=1mA) vs. temperature



Reverse leakage current vs. reverse voltage and temperature

Package Dimensions



TO-257 package drawing (dimensions in mm)

Ordering Information

Common Anode

Product Name	Ordering Reference	Package	Marking
CHT-AMALTHEA	CHT-PLA0738A-TO257-T	TO-257	PLA0738A

Common Cathode

Product Name	Ordering Reference	Package	Marking
CHT-AMALTHEA	CHT-PLA0738B-TO257-T	TO-257	PLA0738B

Dual Series

Product Name	Ordering Reference	Package	Marking
CHT-AMALTHEA	CHT-PLA0738C-TO257-T	TO-257	PLA0738C

Contact & Ordering

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