SURFACE-MOUNT SCHOTTKY BARRIER DIODE

Product Summary (@ T_A = +25°C)

V_{RRM} (V)	I_O (mA)	$V_{F(MAX)}$ (mV)	$I_{R(MAX)}$ (µA)
60	500	630	40

Features and Benefits

- High Current Capability (I_O = 500mA)
- Low V_F
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The ZHCS506Q is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.** https://www.diodes.com/quality/product-definitions/

Applications

- DC-DC converters
- Mobile telecomms
- PCMIA

Mechanical Data

- Package: SOT23
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish Annealed over Alloy 42 Leadframe (Lead Free Plating). Solderable per MIL-STD-202, Method 208 e3
- Weight: 0.0089 grams (Approximate)

SOT23

Top View

Cathode1

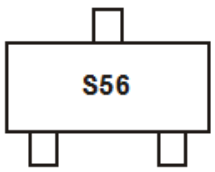
Anode 3 NC 2

Ordering Information (Note 4)

Orderable Part Number	Package	Packing	
		Qty.	Carrier
ZHCS506QTA	SOT23	3000	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



S56 = Product Type Marking Code

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Continuous Reverse Voltage		V_{RRM}	60	V
Continuous Forward Current		I_O	500	mA
Forward Voltage @I_F =500mA		V_F	630	mV
Average Peak Forward Current; D.C. = 50%		I_{FAV}	1000	mA
Non Repetitive Forward Current	t ≤ 100µs	I_{FSM}	5.5	A
	t ≤ 10ms		2.5	A

Thermal Characteristics

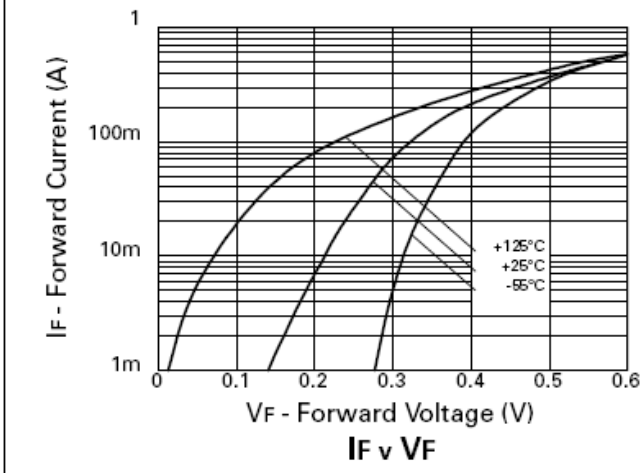
Characteristic	Symbol	Value	Unit
Power Dissipation, T_A = +25°C	P_D	330	mW
Junction Temperature	T_J	+125	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C
Typical Thermal Resistance, Junction to Ambient (Note 5)	$R_{\theta JA}$	290	°C/W

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

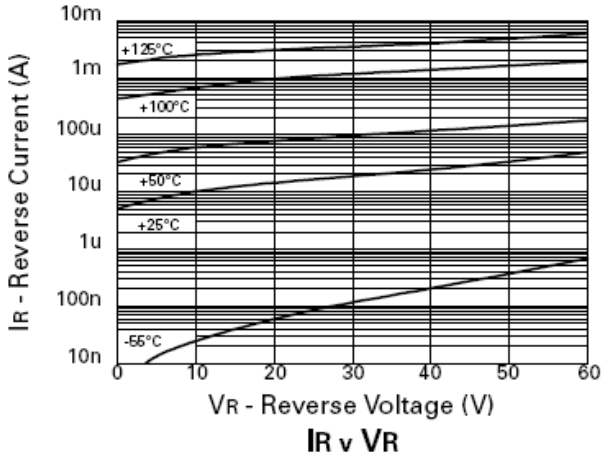
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage	$V_{(BR)R}$	60	80	—	V	I_R = 200µA
Forward Voltage (Note 6)	V_F	—	275	310	mV	I_F = 50mA
		—	320	360		I_F = 100mA
		—	415	470		I_F = 250mA
		—	550	630		I_F = 500mA
		—	680	800		I_F = 750mA
		—	820	960		I_F = 1A
		—	1120	1350		I_F = 1.5A
		—	565	—		I_F = 500mA, T_A = +100°C
Reverse Current	I_R	—	20	40	µA	V_R = 45V
Diode Capacitance	C_D	—	20	—	pF	f = 1MHz, V_R = 25V
Reverse-Recovery Time	t_{RR}	—	10	—	ns	Switched from I_F = 500mA to I_R = 500mA Measured @ I_R = 50mA

Notes: 5. 1*MRP FR-4 PC board,2oz.

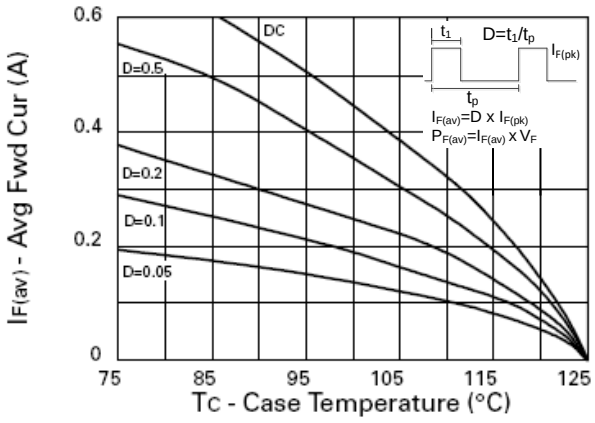
6. Measured under pulsed conditions. Pulse width = 300µS. Duty cycle 2%.



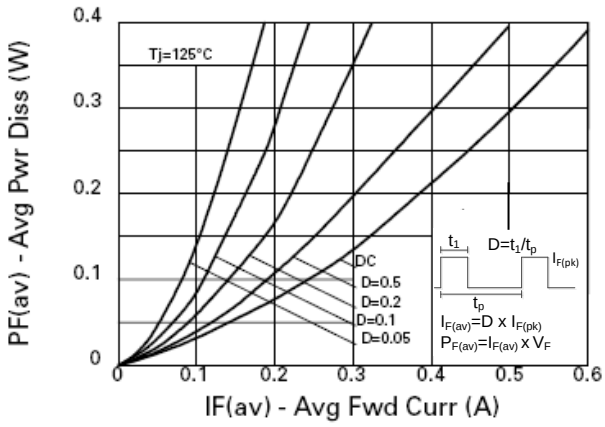
IF v VF



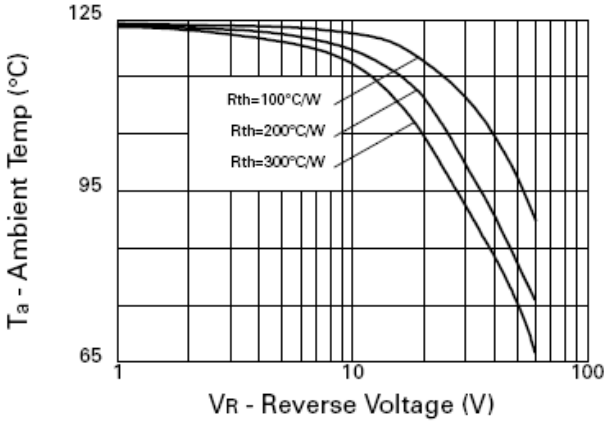
IR v VR



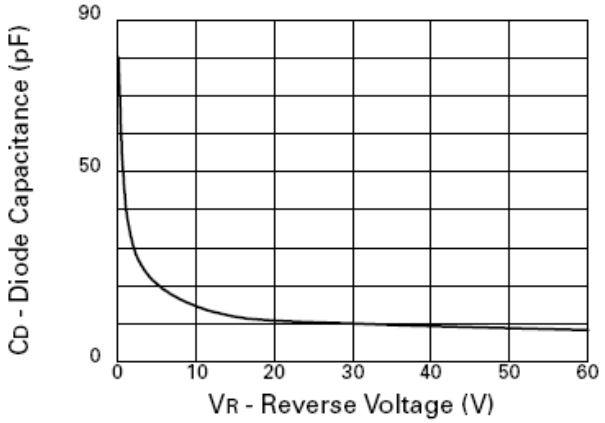
IF(av) v TC



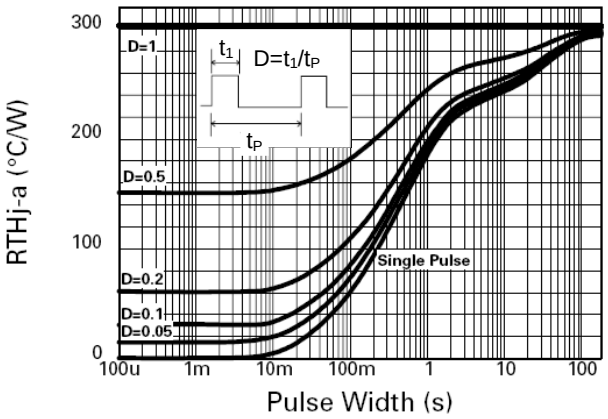
PF(av) v IF(av)



Ta v VR



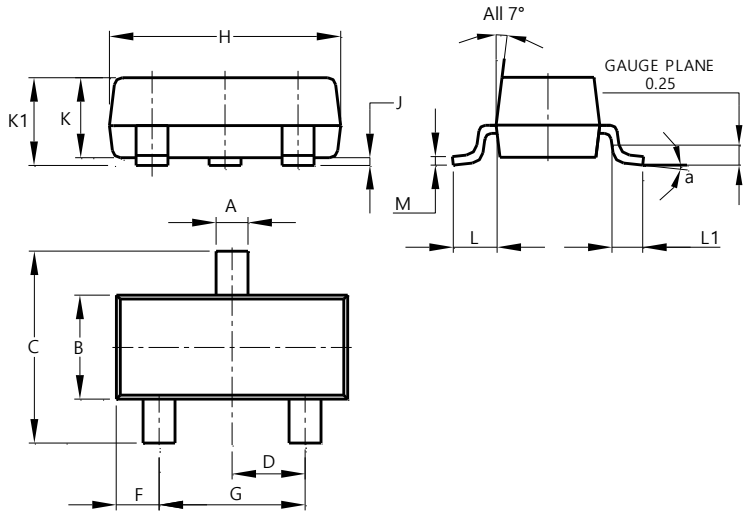
CD v VR



Package Outline Dimensions

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

SOT23

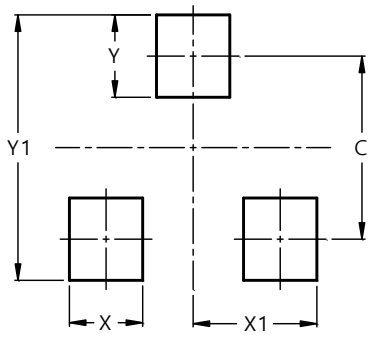


SOT23			
Dim	**Min**	**Max**	**Typ**
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

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

SOT23



Dimensions	Value (in mm)
C	2.0
X	0.8
X1	1.35
Y	0.9
Y1	2.9

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