



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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## Features

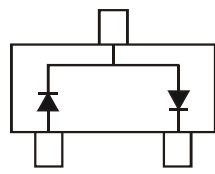
- Very Low Forward Voltage Drop
- Guard Ring Construction for Transient Protection
- High Conductance
- **Lead, Halogen and Antimony Free, RoHS Compliant "Green" Device (Notes 4, 5 and 6)**

## Mechanical Data

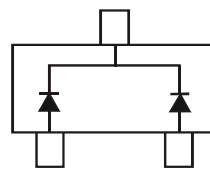
- Case: SOT-23
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Polarity: See Diagram
- Leads: Solderable per MIL-STD-202, Method 208
- Terminals: SDM40E20L/S/A Finish — Matte Tin Finish annealed over Alloy 42 leadframe.  
SDM40E20LC Finish — Matte Tin Finish annealed over CDA194 leadframe.
- Marking Information: See Page 2
- Ordering Information: See Page 2
- Weight: 0.008 grams (approximate)



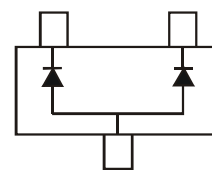
Top View



SDM40E20LS



SDM40E20LC



SDM40E20LA

## Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Single phase, half wave, 60Hz, resistive or inductive load.  
For capacitance load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	$V_{RRM}$	20	V
Working Peak Reverse Voltage	$V_{RWM}$		
DC Blocking Voltage	$V_R$		
RMS Reverse Voltage	$V_{R(RMS)}$	14	V
Forward Continuous Current (Note 1)	$I_{FM}$	0.4	A
Non-Repetitive Peak Forward Surge Current 8.3ms single half sine-wave superimposed on rated load	$I_{FSM}$	2	A

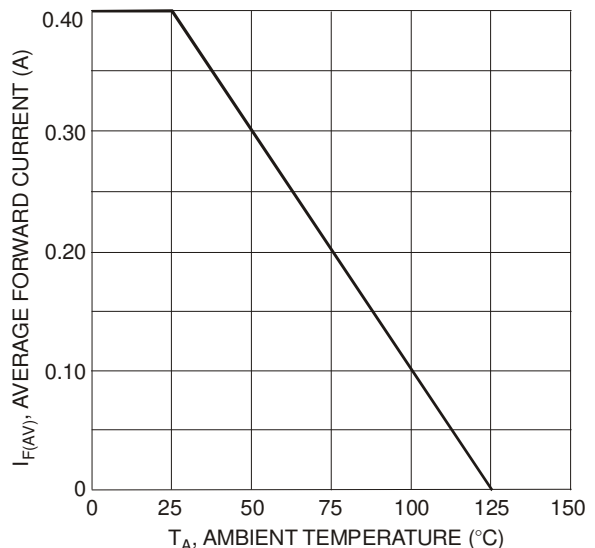
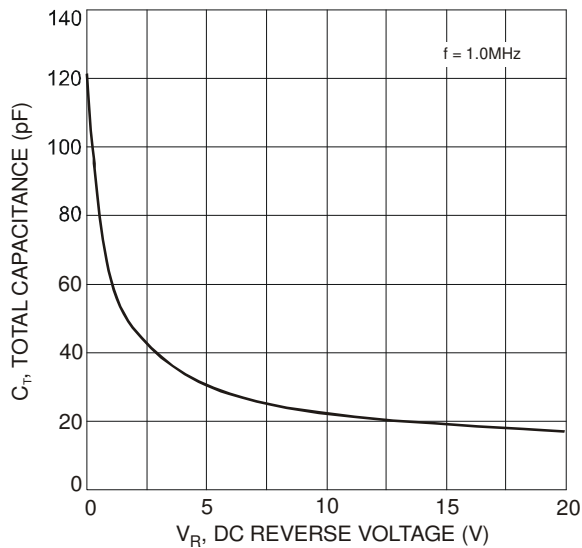
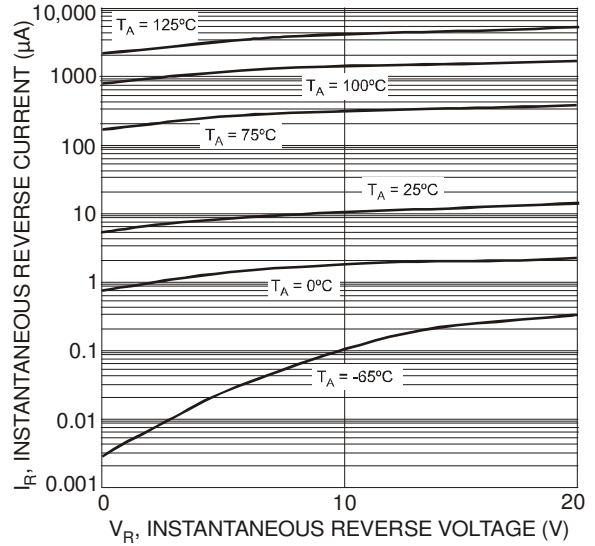
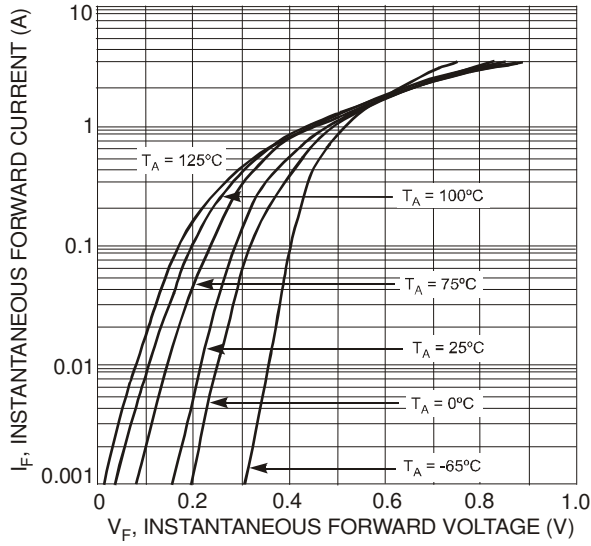
## Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 1) (Note 2)	$P_D$	225	mW
		300	
Typical Thermal Resistance Junction to Ambient (Note 1) (Note 2)	$R_{\theta JA}$	444	$^\circ\text{C/W}$
		333	
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 Conditions
Reverse Breakdown Voltage (Note 3)	$V_{(BR)R}$	20	—	—	V	$I_R = 0.5\text{mA}$
Forward Voltage Drop	$V_F$	—	—	0.310	V	$I_F = 0.1\text{A}$
		—	—	0.430		$I_F = 0.5\text{A}$
Leakage Current (Note 3)	$I_R$	—	—	100	$\mu\text{A}$	$V_R = 10\text{V}$
		—	—	250		$V_R = 20\text{V}$
Total Capacitance	$C_T$	—	120	—	pF	$f = 1\text{MHz}, V_R = 0\text{VDC}$

- Notes:
1. Device mounted on FR-5 1.0 x 0.75 x 0.062 inch PCB pad layout.
  2. Device mounted on Alumina PCB, 0.4 inch x 0.3 inch x 0.024 inch pad layout.
  3. Short duration pulse test used to minimize self-heating effect.
  4. No purposefully added lead. Halogen and Antimony Free.
  5. Diodes Inc.'s "Green" policy can be found on our website at [http://www.diodes.com/products/lead\\_free/index.php](http://www.diodes.com/products/lead_free/index.php).
  6. Product manufactured with Green Molding Compound and does not contain Halogens or  $\text{Sb}_2\text{O}_3$  Fire Retardants.

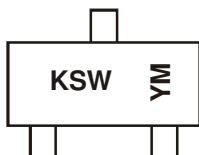


### Ordering Information (Note 7)

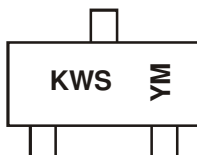
Part Number	Case	Packaging
SDM40E20LS-7-F	SOT-23	3000/Tape & Reel
SDM40E20LC-7	SOT-23	3000/Tape & Reel
SDM40E20LA-7	SOT-23	3000/Tape & Reel

Notes: 7. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

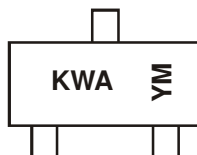
### Marking Information



KSW = SDM40E20LS Product  
Type Marking Code  
YM = Date Code Marking  
Y = Year ex: T = 2006  
M = Month ex: 9 = September



KWS = SDM40E20LC Product  
Type Marking Code  
YM = Date Code Marking  
Y = Year ex: T = 2006  
M = Month ex: 9 = September



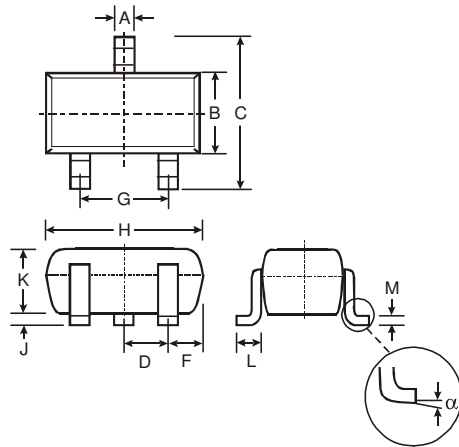
KWA = SDM40E20LA Product  
Type Marking Code  
YM = Date Code Marking  
Y = Year ex: T = 2006  
M = Month ex: 9 = September

Date Code Key

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Code	S	T	U	V	W	X	Y	Z	A	B	C

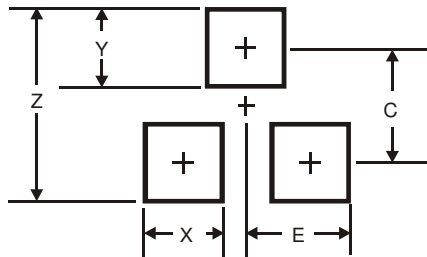
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

## Package Outline Dimensions



SOT-23		
Dim	Min	Max
A	0.37	0.51
B	1.20	1.40
C	2.30	2.50
D	0.89	1.03
F	0.45	0.60
G	1.78	2.05
H	2.80	3.00
J	0.013	0.10
K	0.903	1.10
L	0.45	0.61
M	0.085	0.180
α	0°	8°
<b>All Dimensions in mm</b>		

## Suggested Pad Layout



Dimensions	Value (in mm)
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

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