40V HIGH CURRENT LOW LEAKAGE SCHOTTKY DIODE

Product Summary

V_{RRM} (V)	I_O (A)	V_F Max (V) @ +25°C	I_R Max (µA) @ 30V +25°C
40	2	0.54	40

Features and Benefits

- Low Equivalent on Resistance
- Extremely Low Leakage
- Low V_F, Fast Switching Schottky
- Package Thermally Rated to +150°C
- **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 (ZLLS2000Q)**

Description and Applications

A surface mount Schottky Barrier Diode featuring low forward voltage drop suitable for high frequency rectification and reverse voltage protection.

- DC-DC converters
- Strobes
- Mobile phones
- Charging circuits
- Motor controls

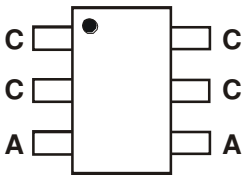
Mechanical Data

- Package: SOT26
- 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 Copper Leadframe; (Lead-Free Plating) Solderable per MIL-STD-202, Method 208 e3
- Weight: 0.016 grams (Approximate)

SOT26

Top View

Device Symbol



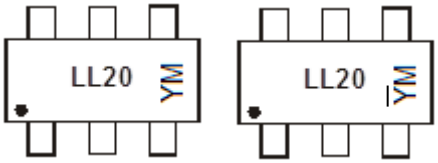
Top View
Pin Out

Ordering Information (Note 4)

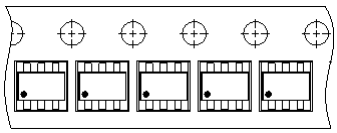
Part Number	Package	Packing	
		Qty.	Carrier
ZLLS2000TA	SOT26	3,000	Tape & Reel
ZLLS2000TC	SOT26	10,000	Tape & Reel

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



LL20 = Product Type Marking Code
YM = Date Code Marking
Y or $\overline{Y}$ = Year (ex: J = 2022)
M = Month (ex: 9 = September)



Date Code Key

Year	2010	….	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Code	X	….	J	K	L	M	N	O	P	R	S	T

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

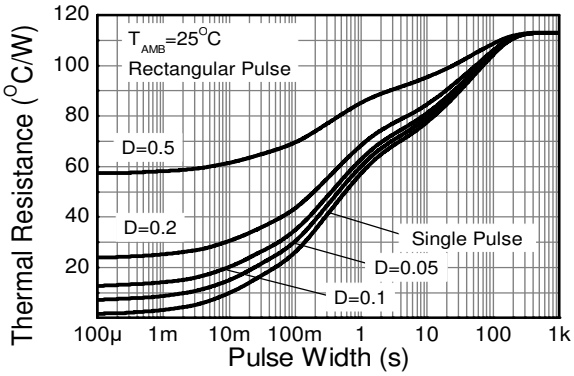
Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Continuous Reverse Voltage		V_{RRM}	40	V
Forward Current		I_F	2.2	A
Peak Repetitive Forward Current Rectangular Pulse Duty Cycle		I_{FPK}	3.55	A
Non Repetitive Forward Current	t ≤ 100µs t ≤ 10ms	I_{FSM}	36 12	A A

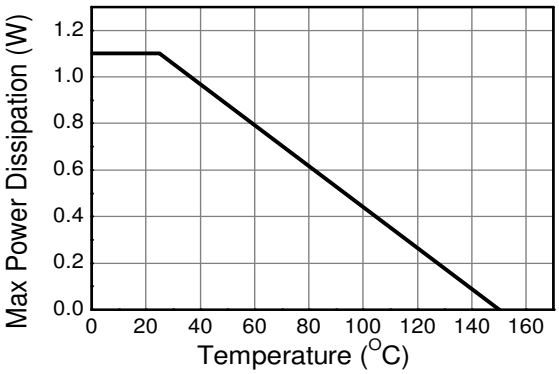
Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation @T_A = +25°C Single Die Continuous Single Die Measured at t < 5 secs	P_D	— 1.1 1.71	— W W
Junction to Ambient (Note 5)	$R_{\theta JA}$	113	°C/W
Junction to Ambient (Note 6)	$R_{\theta JA}$	73	°C/W
Storage Temperature Range	T_{STG}	-55 to +150	°C
Junction Temperature	T_J	+150	°C

Notes: 5. For a device surface mounted on 25mm x 25mm FR-4 PCB with high coverage of single sided 1oz copper, in still air conditions.
6. For a device mounted on FR-B PCB measured at t < 5 secs.



Transient Thermal Impedance

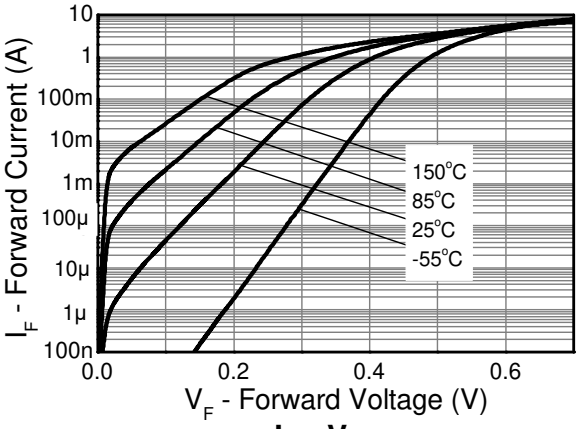


Derating Curve

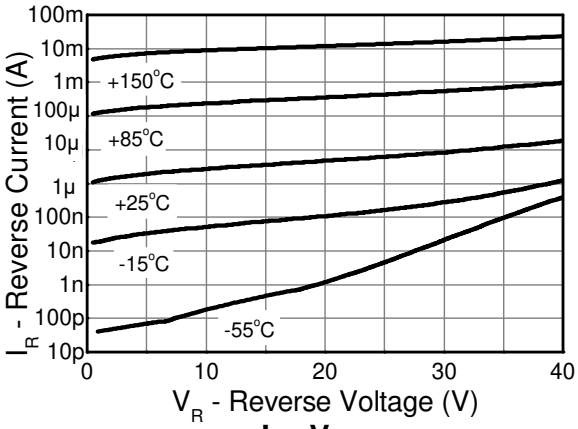
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage	$V_{(BR)R}$	40	—	—	V	I_R = 1mA
Forward Voltage (Note 7)	V_F	—	285	—	mV	I_F = 50mA
		—	305	—		I_F = 100mA
		—	335	—		I_F = 250mA
		—	365	390		I_F = 500mA
		—	403	430		I_F = 1A
		—	433	490		I_F = 1.5A
		—	461	540		I_F = 2A
		—	509	600		I_F = 3A
		—	450	—		I_F = 2A, T_A = +100°C
Reverse Current	I_R	— —	10 0.6	40 —	µA mA	V_R = 30V V_R = 30V, T_A = +85°C
Diode Capacitance	C_D	—	65	—	pF	f = 1MHz, V_R = 30V
Reverse Recovery Time Reverse Recovery Charge	t_{RR} Q_{RR}	— —	6 685	— —	ns nC	Switched from I_F = 500mA to V_R = 5.5V Measured @ I_R = 50mA. dI/dt = 500mA/ns R_{SOURCE} = 6Ω; R_{LOAD} = 10Ω

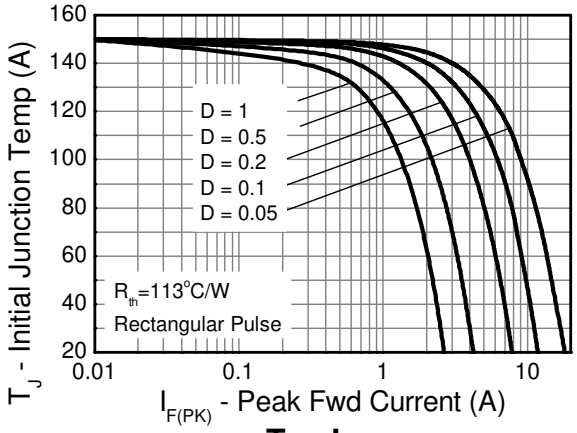
Note: 7. Measured under pulsed conditions. Pulse width = 300µs. Duty cycle < 2%.



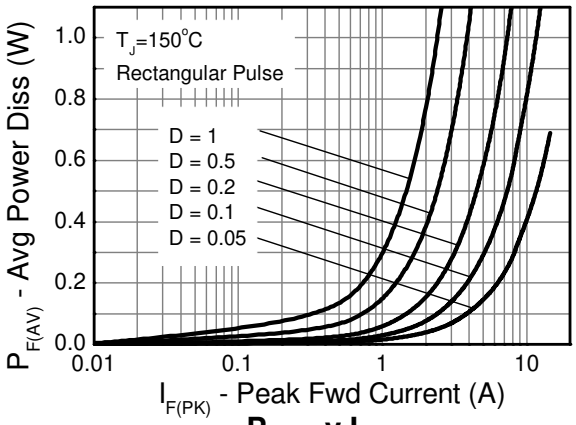
I_F v V_F



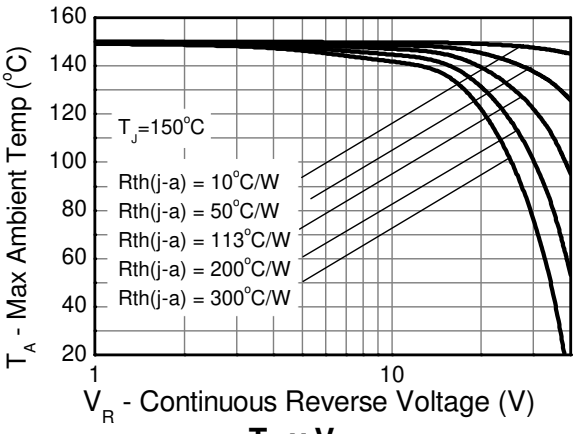
I_R v V_R



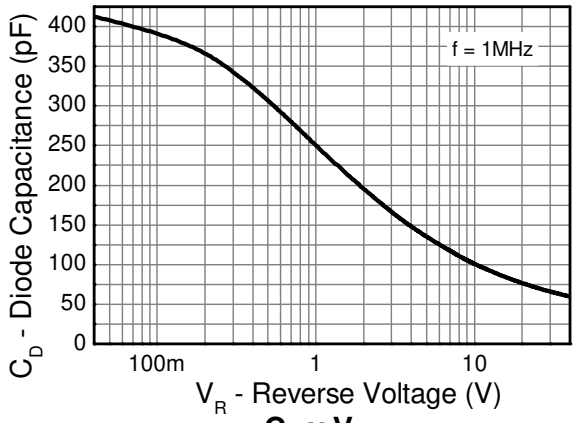
T_J v $I_{F(PK)}$



$P_{F(AV)}$ v $I_{F(PK)}$



T_A v V_R

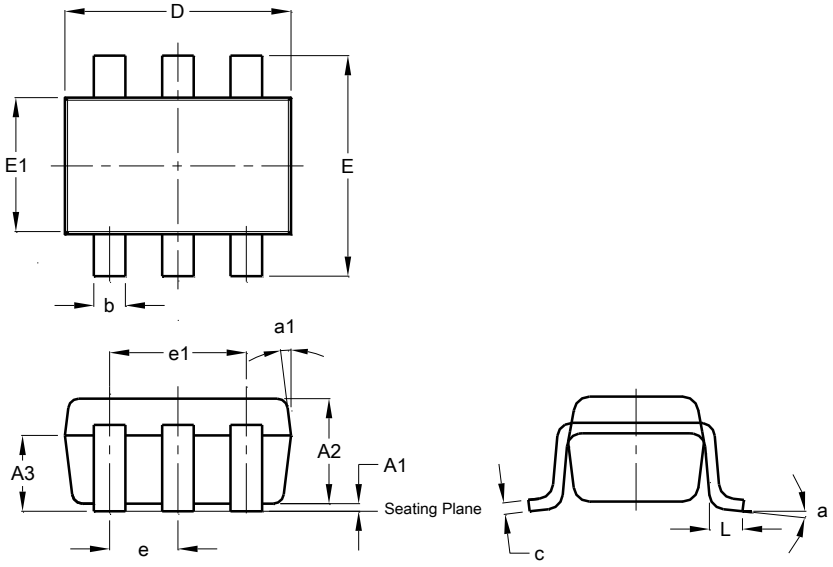


C_D v V_R

Package Outline Dimensions

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

SOT26

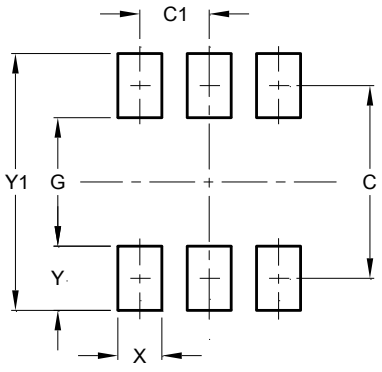


SOT26			
Dim	**Min**	**Max**	**Typ**
A1	0.013	0.10	0.05
A2	1.00	1.30	1.10
A3	0.70	0.80	0.75
b	0.35	0.50	0.38
c	0.10	0.20	0.15
D	2.90	3.10	3.00
e	-	-	0.95
e1	-	-	1.90
E	2.70	3.00	2.80
E1	1.50	1.70	1.60
L	0.35	0.55	0.40
a	-	-	8°
a1	-	-	7°
All Dimensions in mm			

Suggested Pad Layout

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

SOT26



Dimensions	Value (in mm)
C	2.40
C1	0.95
G	1.60
X	0.55
Y	0.80
Y1	3.20

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