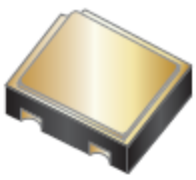
1N66xxUB Series

Silicon Switching Diode

Rev. V4

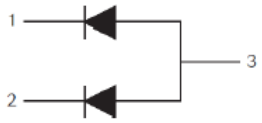
Features

- JAN, JANTX, JANTXV and JANS Qualification is available per MIL-PRF-19500/578/609 (see part nomenclature for all available options)
- Surface Mount Equivalent of JEDEC registered 1N6638 - 1N6643
- Very Low Capacitance
- Very Fast Switching Speeds with Minimal Reverse Recovery Times
- Unidirectional as well as Doubler, Common Anode and Common Cathode Polarities are Available
- RoHS Compliant by Design

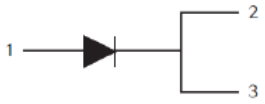


Top View

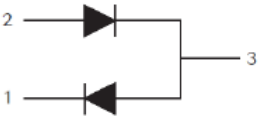
Bottom View



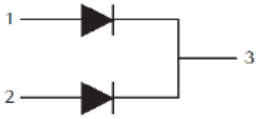
Common Anode (UBCA)



Unidirectional (UB)



Doubler (UBD)



Common Cathode (UBCC)

Description

The 1N66xxUB Series of switching/signal diodes feature ceramic bodied construction for military grade products per MIL-PRF-19500/578/609. These small, low capacitance diodes, with very fast switching speeds, are featured in a surface mount UB package with various polarities available.

These devices are ideally suited for high frequency data lines, RS-232 & RS-422 interface networks, and Ethernet 10 Base T, LAN & computers.

Electrical Specifications

Part # (add UB, UBCA, UBCC, UBD as per part nomenclature)	V_{BR} @ I_R		V_{RWM}	V_{FR} / t_{FR} @ I_F = 200 mA		C_T1 V_R = 0.0 V	C_T2 V_R = 1.5 V	trr I_R= 10 mA, I_F = 10 mA
	V(pk)	µA	V(pk)	V(pk)	ns	pF	pF	ns
1N6638	150	100	125	5	20	2.5	2.0	4.5
1N6639	100	10	75	5	10	2.5	—	4
1N6640	75	10	50	5	10	2.5	—	4
1N6641	75	10	50	5	10	3.0	—	5
1N6642	100	100	75	5	20	5.0	2.8	5
1N6643	75	100	50	5	20	5.0	2.8	6

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Electrical Specifications

Part # (add UB, UBCA, UBCC, UBD as per part nomenclature)	I_R				V_F @ I_F				I_F
	V_R = 20 V	V_R = V_{RWM}	V_R = 20 V T_A = +150° C	V_R = V_{RWM}, T_A = +150° C			T_A = +150°C	T_A = -55°C	
	nA	nA	µA	µA	V	V	V	V	mA
					Min.	Max.	Max.	Max.	(pulsed)
1N6638	35	500	50	100	— —	1.1 0.8	- 0.65	1.2 —	200 10
1N6639	—	100	—	90	—	1.2		1.3	500
1N6640	—	100	—	90	0.54 0.76 0.82 0.87	0.62 0.86 0.92 1.0	—	— — — 1.1	1 50 100 200
1N6641	—	100	—	90	0.87	1.1	—	1.2	200
1N6642	25	500	50	100	—	0.8 1.2	0.8 —	— 1.2	10 100
1N6643	50	500	75	100	—	0.8 1.2	0.8 —	— 1.4	10 100

Absolute Maximum Ratings @ +25°C (unless otherwise specified)

Part # (add UB, UBCA, UBCC, UBD as per part nomenclature)	Breakdown Voltage	Working Peak Reverse Voltage	Average Rectified Current @ T_A = +75°C[1]	Non-Repetitive Sinusoidal Surge Current (tp = 8.3 ms)	Junction & Storage Temperature Range
1N6638	150	125	300 mA	2.5 A (pk)	-65°C to +200°C
1N6639	100	75			
1N6640	75	50			
1N6641	75	50			
1N6642	100	75			
1N6643	75	50			

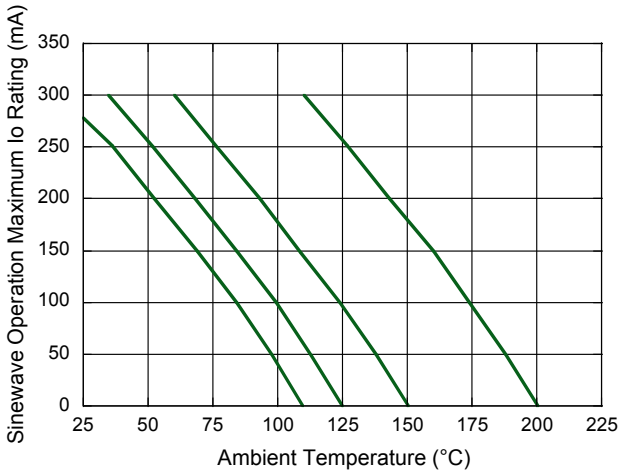
1. See derating curve.

Thermal Characteristics[2]

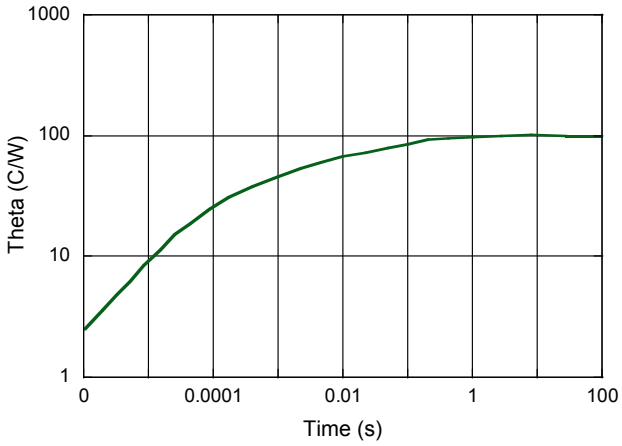
Characteristics	Symbol	Max. Value
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	325°C/W
Thermal Resistance, Junction to Solder Pad	$R_{\theta JSP}$	100°C/W

2. See thermal impedance curve.

Temperature - Current Derating



Thermal Impedance



Sinewave Operation 50% Duty Cycle, $R_{\theta JA}$ (PCB) = 325°C/W.
Maximum Finish-Alloy Temperature = 175°C

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Parts Nomenclature

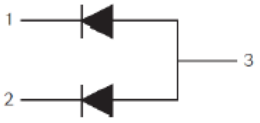
JAN 1N66xx UB CA

Reliability Level
JAN = JAN level
JANTX = JANTX level
JANTXV = JANTXV level
Blank = Commercial grade

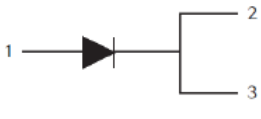
JEDEC type number
(see Electrical Characteristics table)

Polarity
CA = Common Anode
CC = Common Cathode
D = Doubler
Blank = Unidirectional

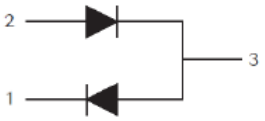
Surface Mount package



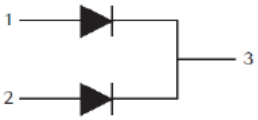
Common Anode (UBCA)



Unidirectional (UB)

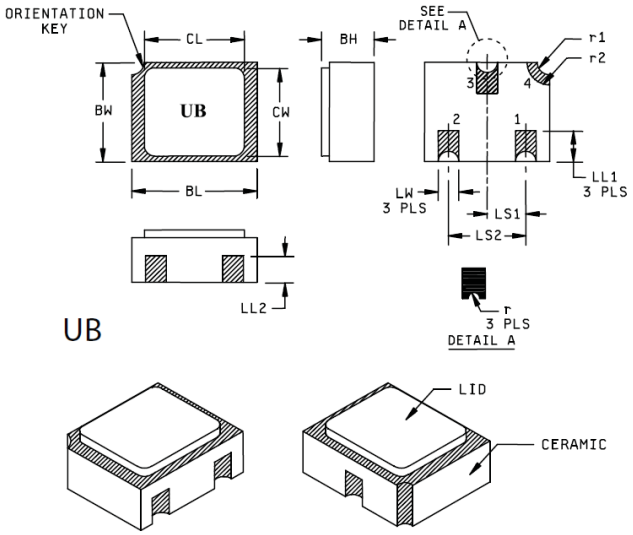


Doubler (UBD)



Common Cathode (UBCC)

Outline Drawing (UB)



Case: Ceramic
Thermals: Gold plating over nickel under plate.
Tape & Reel option: Standard per EIA-4180. Consult factory for quantities.
Weight: <0.04 grams

Dimensions[3,4,5,6]

Symbol	Inches		Millimeters	
	Min.	Max.	Min.	Max.
BH	0.046	0.056	1.17	1.42
BL	0.115	0.128	2.92	3.25
BW	0.085	0.108	2.16	2.74
CL	-	0.128	-	3.25
CW	-	0.108	-	2.74
LL1	0.022	0.038	0.56	0.96
LL2	0.017	0.035	0.43	0.89
LS_1	0.035	0.039	0.89	0.99
LS_2	0.071	0.079	1.81	2.01
LW	0.016	0.024	0.41	0.61
r	-	0.008	-	0.203
r_1	-	0.012	-	0.305
r_2	-	0.022	-	0.559

3. Dimensions are in inches. Millimeters are given for general information only.
4. Hatched areas on package denote metallized areas.
5. Pad 1 = Base, Pad 2 = Emitter, Pad 3 = Collector, Pad 4 = Shielding connected to the lid.
6. In accordance with ASME Y14.5M, diameters are equivalent to ϕx symbology.