A Product Line of Diodes Incorporated | LITE-ON SEMICONDUCTOR

LSC06065TDW

SILICON CARBIDE SCHOTTKY DIODE

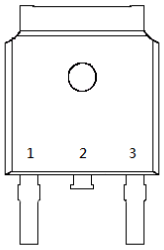
REVERSE VOLTAGE – 650 Volts
FORWARD CURRENT – 6 Amperes

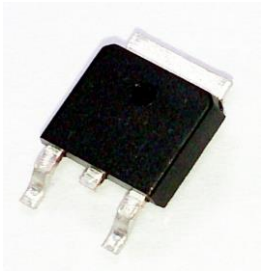
FEATURES
- Positive temperature coefficient for safe operation and easy of paralleling
- 175°C maximum operating junction temperature
- Essentially no reverse or forward recovery
- Extremely fast switching not dependent on temperature
- Qualified according to AEC-Q101 Rev_D
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

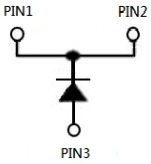
APPLICATION
- Power converters
- Switching-mode power supplies
- Power Factor correction modules

MECHANICAL DATA
- Case: TO-252 molded plastic
- Case Material: "Green" molding compound, UL flammability classification 94V-0,"Halogen-free".
- Lead free finish, RoHS compliant
- Moisture Sensitivity: Level 1 per J-STD-020
- Weight: 0.989 grams (Approximate)
- Marking code: 06065TDW

DPAK







MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

ABSOLUTE RATINGS

PARAMETER		SYMBOL	VALUE	UNIT
Maximum repetitive peak reverse voltage		V_{RRM}	650	V
Maximum DC blocking voltage		V_{DC}	650	V
Maximum Average rectified output current	@T_C=110°C	$I_{(AV)}$	6	A
Peak forward surge current 8.3ms single half sine-wave superimposed on rated load.		I_{FSM}	36	A
Operating junction and Storage Temperature range		T_J, T_{STG}	-55 ~ +175	°C

STATIC ELECTRICAL CHARACTERISTICS

PARAMETER	TEST CONDITIONS		SYMBOL	TYP	MAX	UNIT
Forward voltage (Note4)	I_F=6A	T_J=25°C T_J=175°C	V_F	-- 2.00	1.70 2.25	V
Leakage current	V_R=650V	T_J=25°C T_J=175°C	I_R	-- 12.9	200 640	uA

DYNAMIC ELECTRICAL CHARACTERISTICS

PARAMETER	TEST CONDITIONS	SYMBOL	TYP	UNIT
Total Capacitive Charge	I_F=6A ,V_R=400V,dI/dt= 250A/uS,	Q_C	15	nC
Typical junction capacitance (Note 5)		C_J	195	pF

THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	TYP	UNIT
Typical thermal resistance (Note 6,7)	$RthJ_C$ $RthJ_L$	5 4	°C/W

Note:

REV-2 , Sept-2021, KTGB19

1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
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. 300us pulse width, 2% duty cycle.
5. Measured at 1.0MHz and applied voltage of 1.0V DC.
6. Thermal resistance test performed in accordance with JESD-51.
7. The unit mounted on fin-type heatsink (44mm x 30mm x 24mm).

RATING AND CHARACTERISTIC CURVES
LSC06065TDW

FIG.1 FORWARD CURRENT DERATING CURVE

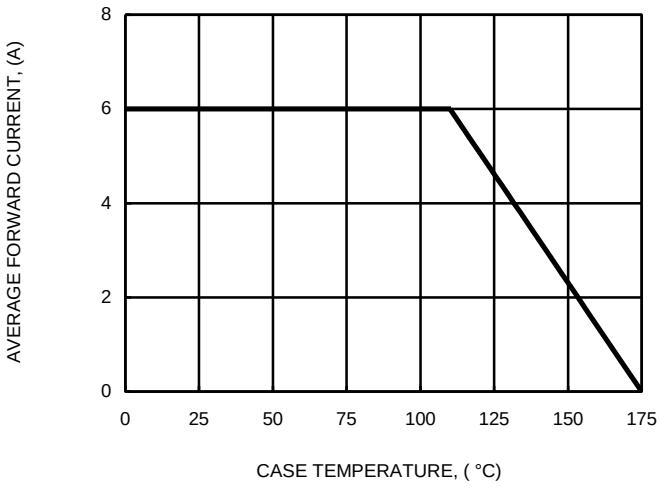


FIG.2 NON-REPETITIVE PEAK SURGE FORWARD CURRENT

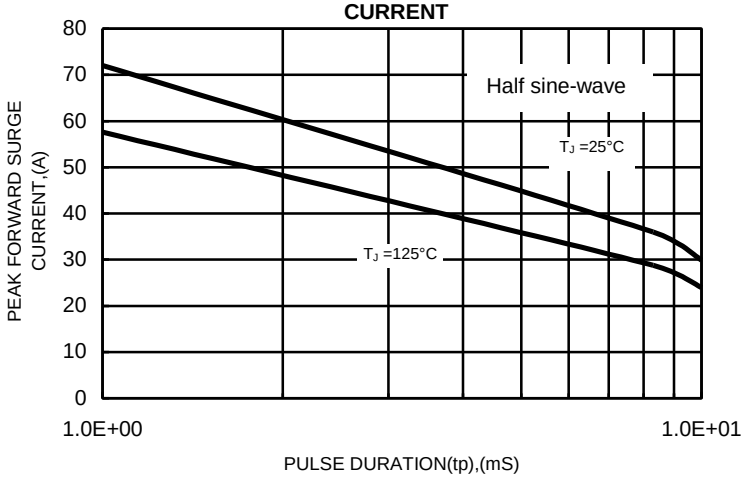


FIG.3 TYPICAL FORWARD CHARACTERISTICS

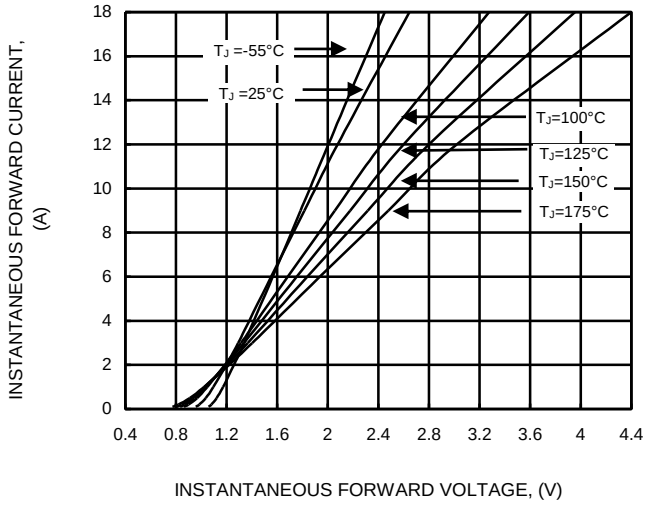


FIG.4 TYPICAL JUNCTION CAPACITANCE

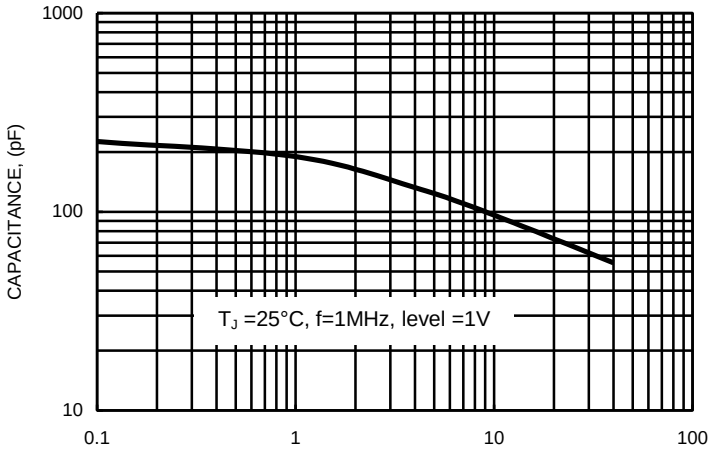


FIG.5 TYPICAL REVERSE CHARACTERISTICS

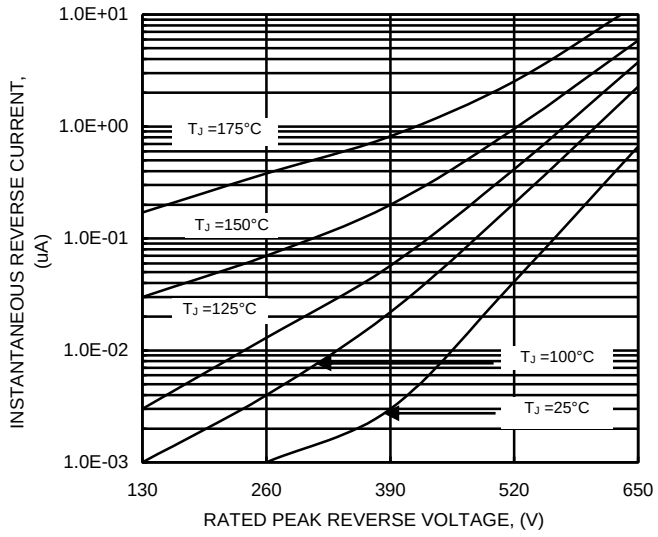
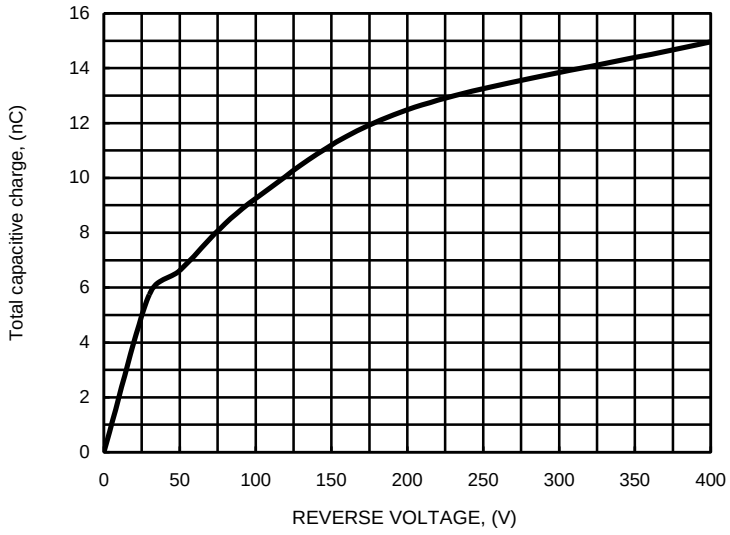


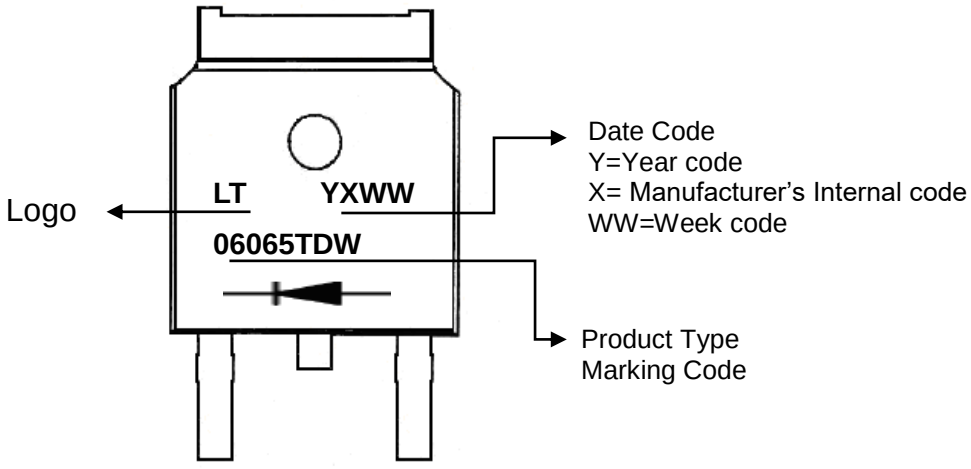
FIG.6 TYPICAL CAPACITIVE CHARGES



Ordering information:

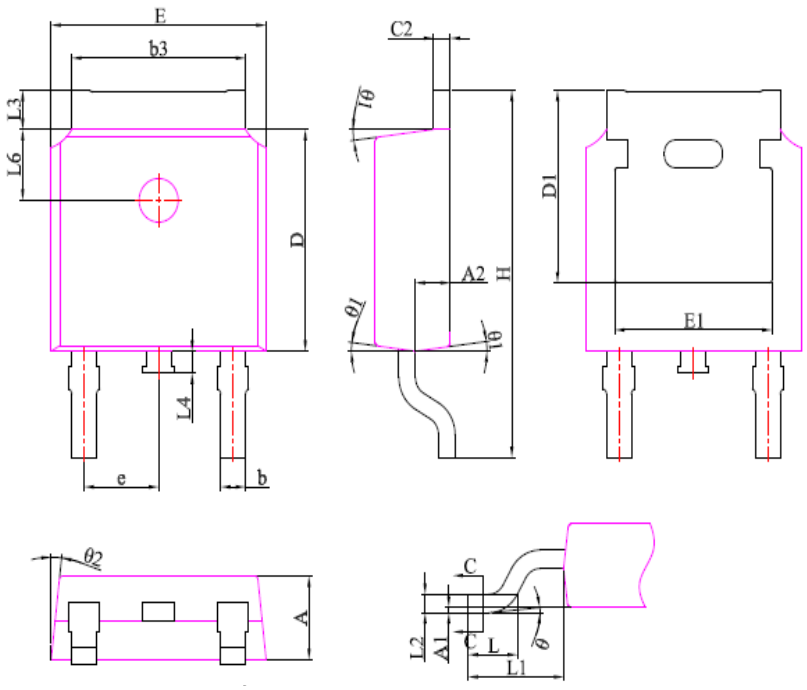
Part Number	Case	Packaging
LSC06065TDW	TO-252	2500/Tape & Reel

Marking information:

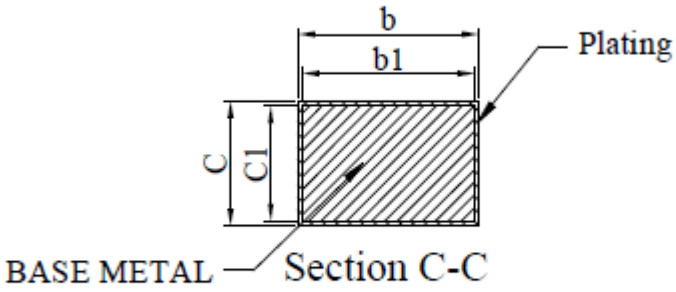


MECHANICAL AND MARKING INFORMATION
LSC06065TDW

Package Dimension :

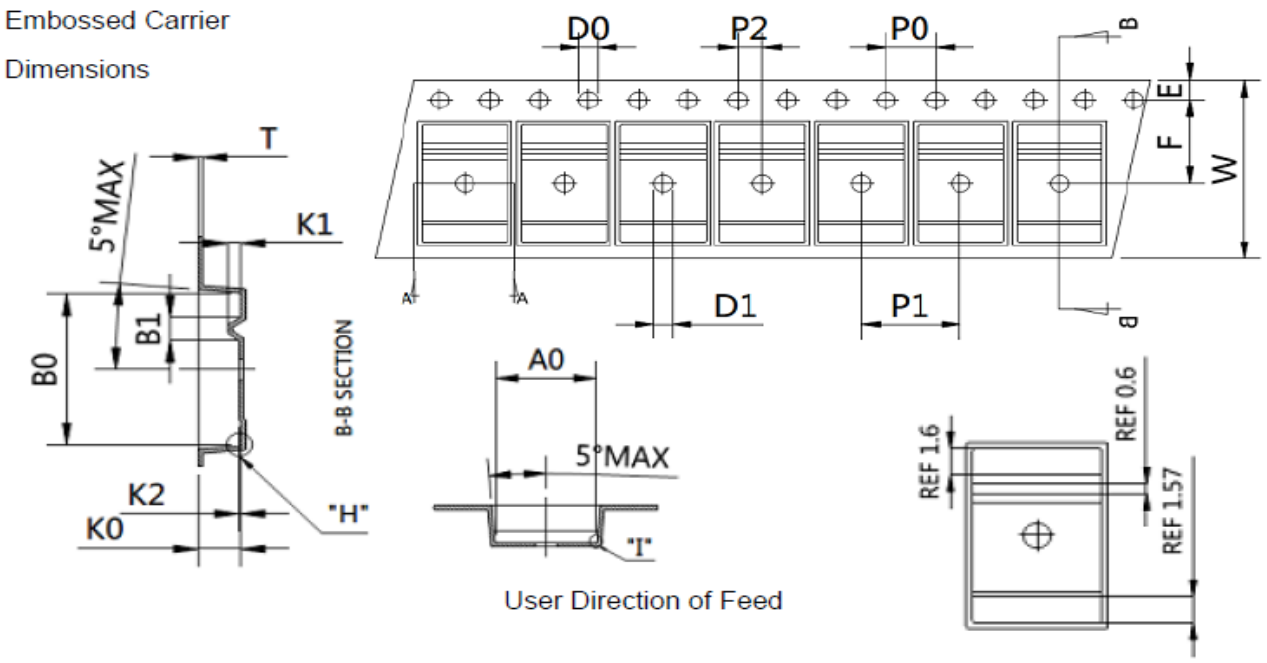


TO-252			
DIM	MIN	TYP	MAX
A	2.20	2.30	2.40
A1	0.00	--	0.15
A2	0.97	1.07	1.17
b	0.68	0.78	0.90
b1	0.66	0.76	0.88
b3	5.20	5.33	5.50
C	0.43	0.53	0.63
C1	0.41	0.51	0.61
C2	0.43	0.53	0.63
D	5.98	6.10	6.22
D1	5.30 REF		
E	6.40	6.60	6.80
E1	4.63	4.83	5.03
e	2.286 REF		
H	9.40	10.10	10.50
L	1.38	1.50	1.75
L1	2.90 REF		
L2	0.51 BSC		
L3	0.88	--	1.28
L4	--	--	1.00
L6	1.65	1.80	1.95
Θ	0°	--	8°
Θ1	5°	7°	9°
Θ2	5°	7°	9°
All dimension in millimeter			



PACKAGING INFORMATION
LSC06065TDW

Embossed Carrier Dimensions



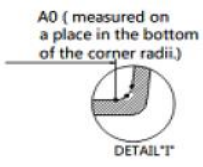
EMBOSSED TYPE **ALL DIMENSION IN MILLIMETERS AND (INCHES)**

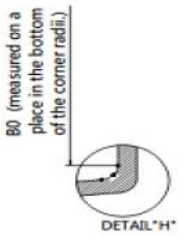
TAPE SIZE	AO	BO	KO	PO	P1	P2	T
16mm	6.90±0.10	10.50±0.10	2.70±0.10	4.00±0.10	8.00±0.10	2.00±0.10	0.30±0.05

PRODUCT TYPE	E	F	DO	D1	W	10PO	B1	K2	K1
TO-252	1.75±0.10	7.50±0.10	1.50±0.25	1.50±0.25	16.0±0.30	40.0±0.20	1.65±0.10	0.15±0.10	0.85±0.10

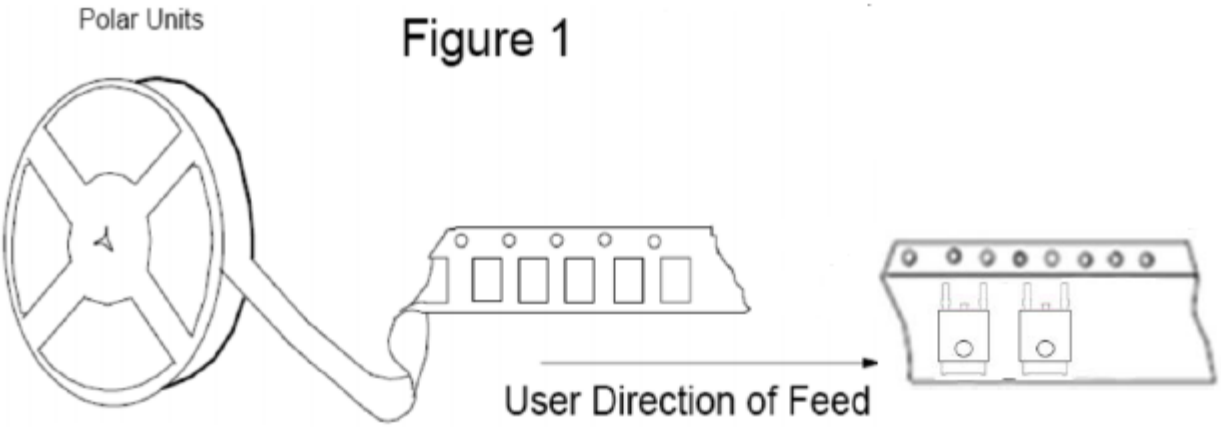
REMARKS:

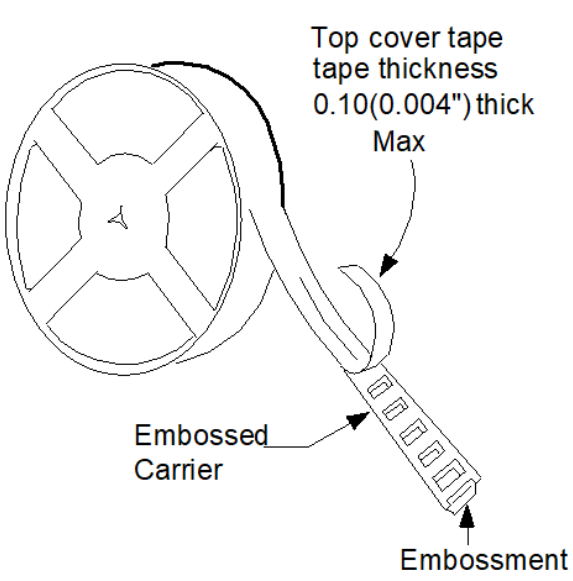
1. ALL other requirements not mentioned here to fulfill EIA-481-D
2. AO&BO measure on a place in the bottom of comer radii (see DETAIL"I" and DETIL"H")
3. KO measured from a place on the inside bottom of the pocket to top surface of carrier
4. P2 and F are measured from centerline of sprocket hole to centerline of pocket
5. 10 Sprocket hole pitch cumulative tolerance is ±0.20mm
6. Unless otherwise specified RO.2max
7. Surface resistivity of carrier tape should be within 10-4-10-8 Ω/square where the relative humidity is under 60% and the temperature is in between 20℃ to 26℃

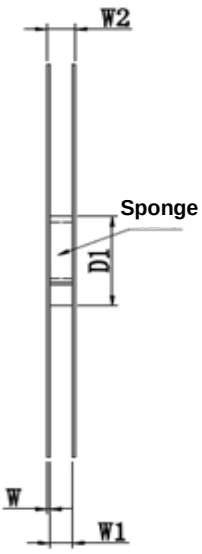


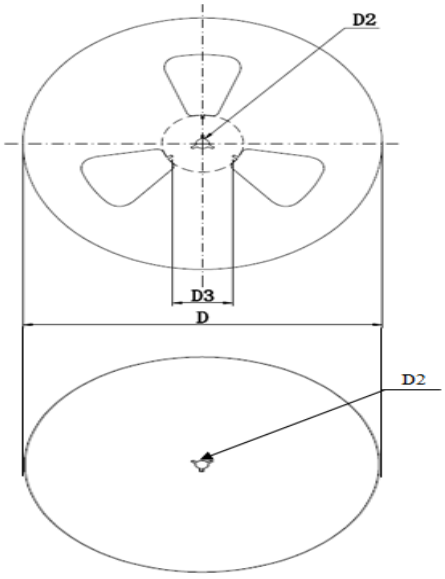


PACKAGING INFORMATION
LSC06065TDW









REEL DIMENSIONS

TAPE SIZE	D	D1	D2	D3	W	W1	W2
16mm	330±2.0	100±2.0	13.0+/-0.5	75.0±2.0	2.30±0.5	17.0±2.0	21.6±2.0

DEVICE TYPE	Q'TY/REEL (PCS)	REEL DIA. (mm)	Box Size (mm)	Q'TY/Box (PCS)	CARTON SIZE (mm)	Q'TY/CARTON (PCS)
TO-252	2500	330	--	--	355x245x350	25000

IMPORTANT NOTICE

1. DIODES INCORPORATED AND ITS SUBSIDIARIES ("DIODES") MAKE NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARDS TO ANY INFORMATION CONTAINED IN THIS DOCUMENT, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION).

2. The Information contained herein is for informational purpose only and is provided only to illustrate the operation of Diodes products described herein and application examples. Diodes does not assume any liability arising out of the application or use of this document or any product described herein. This document is intended for skilled and technically trained engineering customers and users who design with Diodes products. Diodes products may be used to facilitate safety-related applications; however, in all instances customers and users are responsible for (a) selecting the appropriate Diodes products for their applications, (b) evaluating the suitability of the Diodes products for their intended applications, (c) ensuring their applications, which incorporate Diodes products, comply the applicable legal and regulatory requirements as well as safety and functional-safety related standards, and (d) ensuring they design with appropriate safeguards (including testing, validation, quality control techniques, redundancy, malfunction prevention, and appropriate treatment for aging degradation) to minimize the risks associated with their applications.

3. Diodes assumes no liability for any application-related information, support, assistance or feedback that may be provided by Diodes from time to time. Any customer or user of this document or products described herein will assume all risks and liabilities associated with such use, and will hold Diodes and all companies whose products are represented herein or on Diodes' websites, harmless against all damages and liabilities.

4. Products described herein may be covered by one or more United States, international or foreign patents and pending patent applications. Product names and markings noted herein may also be covered by one or more United States, international or foreign trademarks and trademark applications. Diodes does not convey any license under any of its intellectual property rights or the rights of any third parties (including third parties whose products and services may be described in this document or on Diodes' website) under this document.

5. Diodes products are provided subject to Diodes' Standard Terms and Conditions of Sale (https://www.diodes.com/about/company/terms-and-conditions/terms-and-conditions-of-sales/) or other applicable terms. This document does not alter or expand the applicable warranties provided by Diodes. Diodes does not warrant or accept any liability whatsoever in respect of any products purchased through unauthorized sales channel.

6. Diodes products and technology may not be used for or incorporated into any products or systems whose manufacture, use or sale is prohibited under any applicable laws and regulations. Should customers or users use Diodes products in contravention of any applicable laws or regulations, or for any unintended or unauthorized application, customers and users will (a) be solely responsible for any damages, losses or penalties arising in connection therewith or as a result thereof, and (b) indemnify and hold Diodes and its representatives and agents harmless against any and all claims, damages, expenses, and attorney fees arising out of, directly or indirectly, any claim relating to any noncompliance with the applicable laws and regulations, as well as any unintended or unauthorized application.

7. While efforts have been made to ensure the information contained in this document is accurate, complete and current, it may contain technical inaccuracies, omissions and typographical errors. Diodes does not warrant that information contained in this document is error-free and Diodes is under no obligation to update or otherwise correct this information. Notwithstanding the foregoing, Diodes reserves the right to make modifications, enhancements, improvements, corrections or other changes without further notice to this document and any product described herein. This document is written in English but may be translated into multiple languages for reference. Only the English version of this document is the final and determinative format released by Diodes.

8. Any unauthorized copying, modification, distribution, transmission, display or other use of this document (or any portion hereof) is prohibited. Diodes assumes no responsibility for any losses incurred by the customers or users or any third parties arising from any such unauthorized use.

www.diodes.com