

Product Summary

BV_{CEO}	R_{SAT}	I_C
60V	34m Ω	4.5A

Description

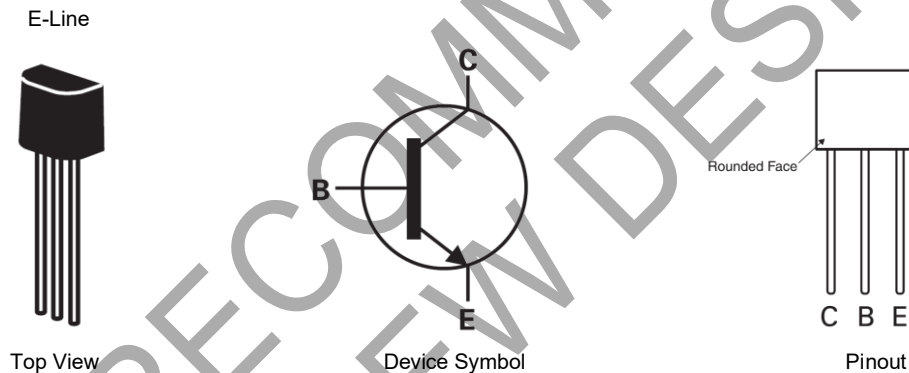
Packaged in the E-line outline, this new low-saturation 60V NPN transistor offers extremely low on-state losses, making it ideal for use in DC-DC circuits and various driving and power-management functions.

Applications

- Emergency lighting circuits
- Motor driving (including DC fans)
- Solenoids, relays and actuator drivers
- DC modules
- Backlight inverters

Features

- Extremely Low Equivalent On-Resistance; $R_{SAT} = 34m\Omega$ at 5A
- 4.5 Amps Continuous Current
- Up to 15 Amps Peak Current
- Very Low Saturation Voltage
- For automotive applications requiring specific change control (i.e. parts qualified to AEC-Q100/101/104/200, PPAP capable, and manufactured in IATF 16949 certified facilities), please [contact us](#) or your local Diodes representative. <https://www.diodes.com/quality/product-definitions/>



Ordering Information

Orderable Part Number	Package	Packing	
		Qty.	Carrier
ZXTN2010ASTOA	E-Line	2000 Units	Reel
ZXTN2010ASTZ	E-Line	2000 Units	Carton

Device Marking

- ZXT
N20
10

Absolute Maximum Ratings

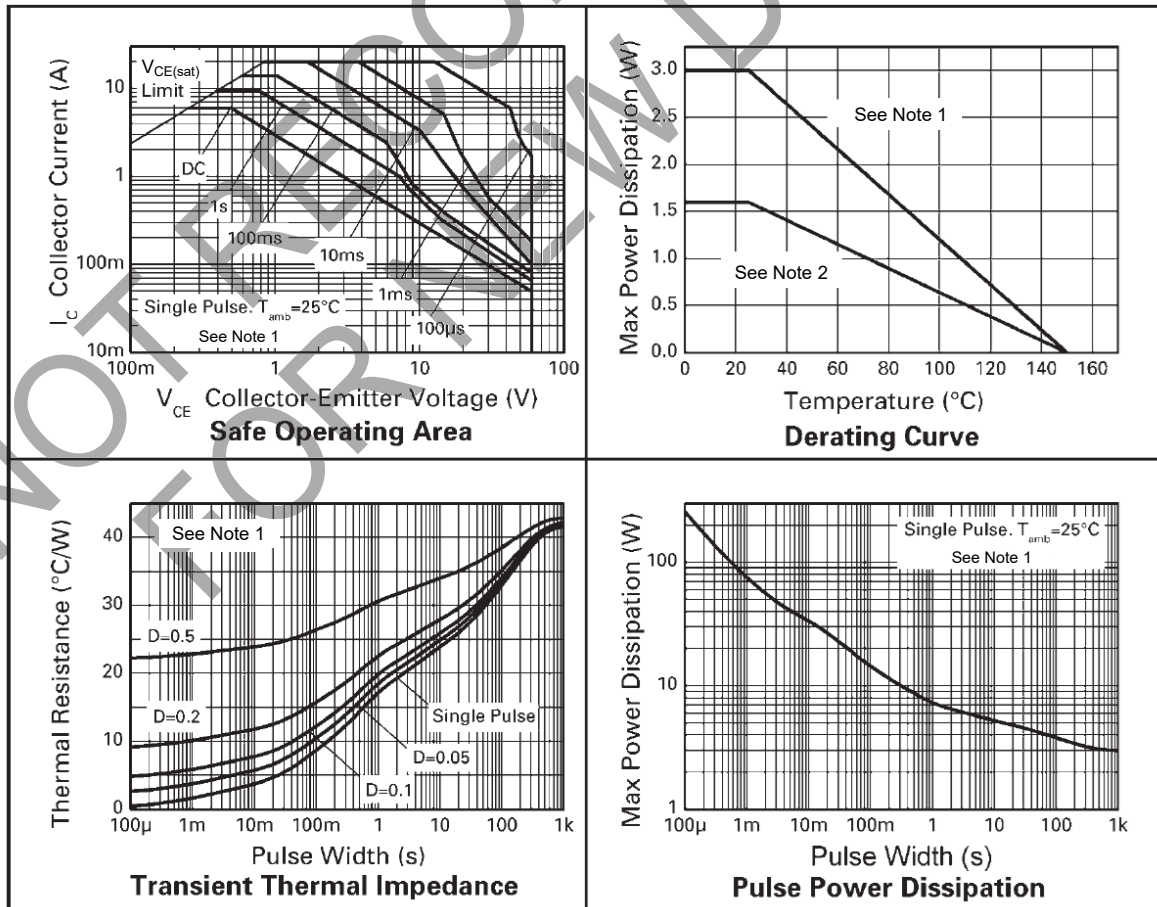
Parameter	Symbol	Value	Unit
Collector-Base Voltage	BV_{CBO}	150	V
Collector-Emitter Voltage	BV_{CEO}	60	V
Emitter-Base Voltage	BV_{EBO}	7	V
Continuous Collector Current (Note 1)	I_C	4.5	A
Peak Pulse Current	I_{CM}	15	A
Practical Power Dissipation (Note 1)	P_D	1.0	W
Linear Derating Factor		8	mW/°C
Power Dissipation at $T_A = 25^\circ\text{C}$ (Note 2)	P_D	0.71	W
Linear Derating Factor		5.7	mW/°C
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to 150	°C

Thermal Resistance

Parameter	Symbol	Value	Unit
Junction to Ambient (Note 1)	$R_{\theta JA}$	125	°C/W
Junction to Ambient (Note 2)	$R_{\theta JA}$	175	°C/W

Notes: 1. For a device through hole mounted on 25mm x 25mm x 1.6mm FR4 PCB with high coverage of single-sided 1oz copper, in still air conditions. Collector lead length to solder point 4mm.
2. For a device mounted in a socket in still air conditions. Collector lead length 10mm.

Characteristics

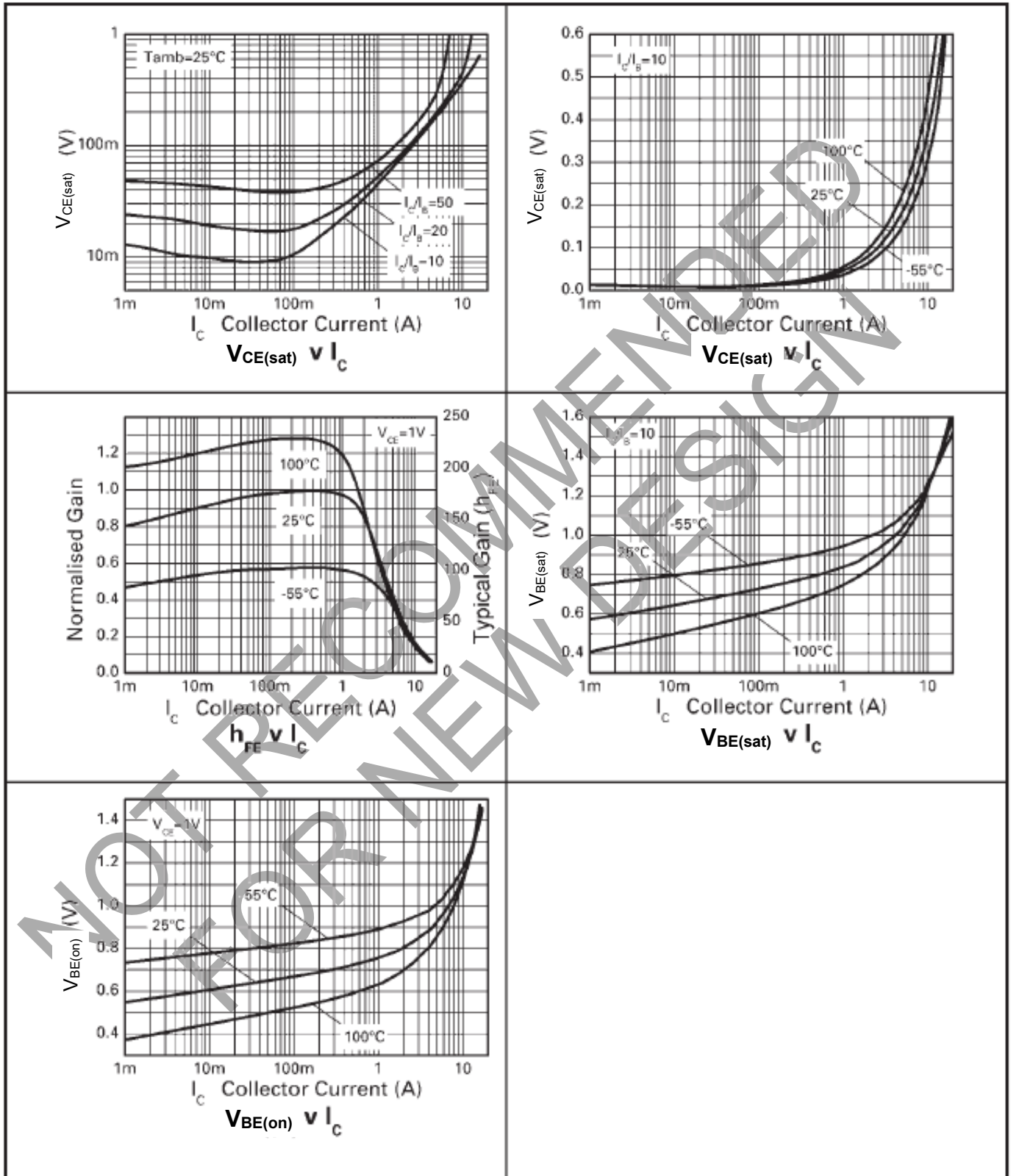


Electrical Characteristics (@ $T_{amb} = +25^{\circ}\text{C}$, unless otherwise stated.)

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Collector-Base Breakdown Voltage	BV_{CBO}	150	190	—	V	$I_C = 100\mu\text{A}$
Collector-Emitter Breakdown Voltage	BV_{CER}	150	190	—	V	$I_C = 1\mu\text{A}$, $R_B \leq 1\text{k}\Omega$
Collector-Emitter Breakdown Voltage	BV_{CEO}	60	80	—	V	$I_C = 10\text{mA}$ (Note 3)
Emitter-Base Breakdown Voltage	BV_{EBO}	7	8.1	—	V	$I_E = 100\mu\text{A}$
Collector Cutoff Current	I_{CBO}	—	—	50 0.5	nA μA	$V_{CB} = 120\text{V}$ $V_{CB} = 120\text{V}$, $T_{amb} = 100^{\circ}\text{C}$
Collector Cutoff Current	I_{CER} $R \leq 1\text{k}\Omega$	—	—	100 0.5	nA μA	$V_{CB} = 120\text{V}$ $V_{CB} = 120\text{V}$, $T_{amb} = 100^{\circ}\text{C}$
Emitter Cutoff Current	I_{EBO}	—	—	10	nA	$V_{EB} = 6\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	—	18	30	mV	$I_C = 100\text{mA}$, $I_B = 5\text{mA}$ (Note 3)
		—	40	55		$I_C = 1\text{A}$, $I_B = 100\text{mA}$ (Note 3)
		—	45	65		$I_C = 1\text{A}$, $I_B = 50\text{mA}$ (Note 3)
		—	95	130		$I_C = 2\text{A}$, $I_B = 50\text{mA}$ (Note 3)
		—	170	210		$I_C = 5\text{A}$, $I_B = 200\text{mA}$ (Note 3)
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	—	950	1050	mV	$I_C = 4\text{A}$, $I_B = 200\text{mA}$ (Note 3)
Base-Emitter Turn-On Voltage	$V_{BE(on)}$	—	840	950	mV	$I_C = 4\text{A}$, $V_{CE} = 1\text{V}$ (Note 3)
Static Forward Current Transfer Ratio	h_{FE}	100	200	—	—	$I_C = 10\text{mA}$, $V_{CE} = 1\text{V}$ (Note 3)
		100	200	300		$I_C = 2\text{A}$, $V_{CE} = 1\text{V}$ (Note 3)
		55	105	—		$I_C = 5\text{A}$, $V_{CE} = 1\text{V}$ (Note 3)
		20	40	—		$I_C = 10\text{A}$, $V_{CE} = 1\text{V}$ (Note 3)
Transition Frequency	f_T	—	130	—	MHz	$I_C = 100\text{mA}$, $V_{CE} = 10\text{V}$ $f = 50\text{MHz}$
Output Capacitance	C_{OBO}	—	31	—	pF	$V_{CB} = 10\text{V}$, $f = 1\text{MHz}$ (Note 3)
Switching Times	t_{ON}	—	42	—	ns	$I_C = 1\text{A}$, $V_{CC} = 10\text{V}$, $I_{B1} = I_{B2} = 100\text{mA}$
	t_{OFF}	—	760	—		

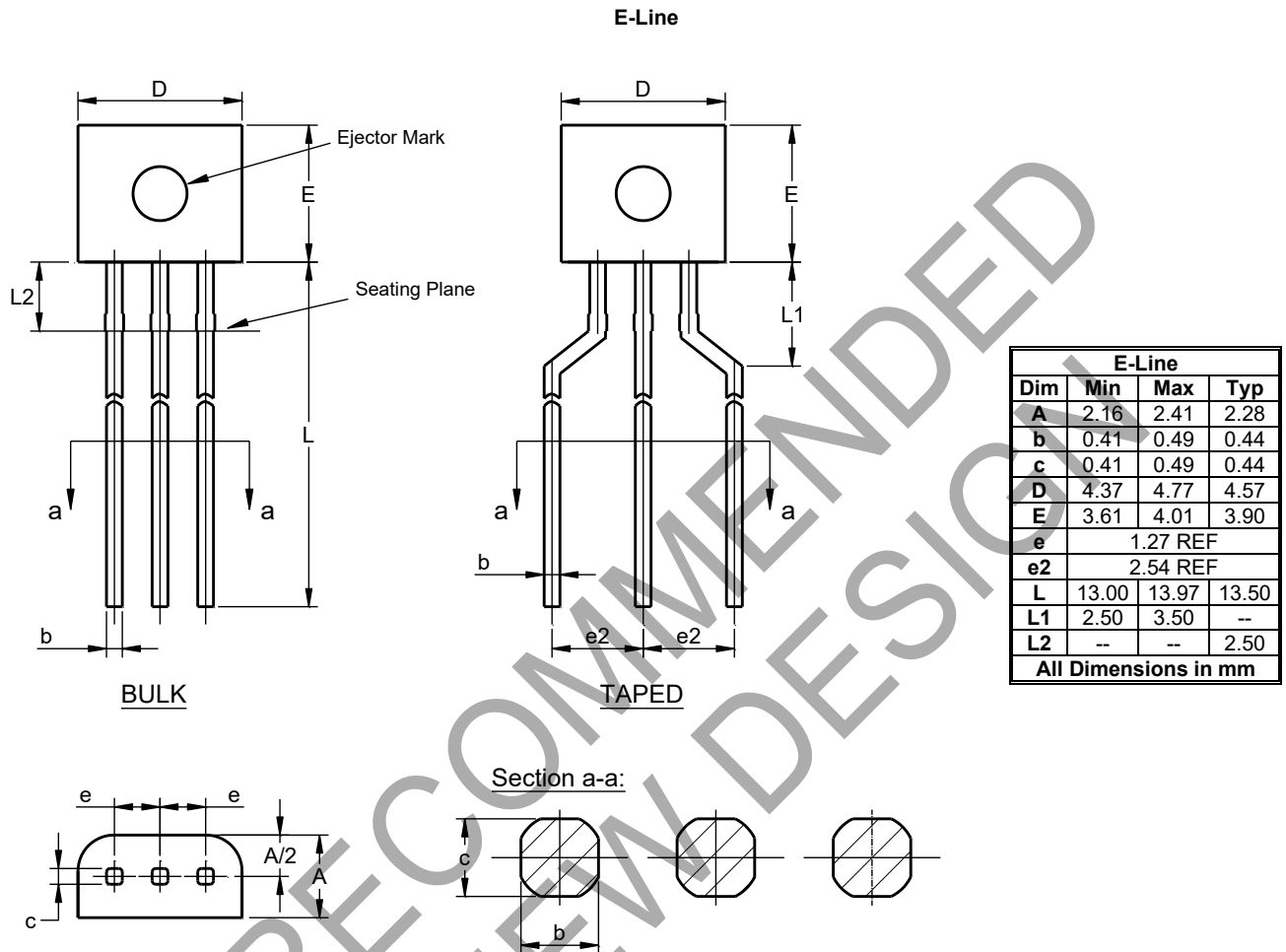
Note: 3. Measured under pulsed conditions. Pulse width = 300 μs . Duty cycle $\leq 2\%$.

Typical Characteristics



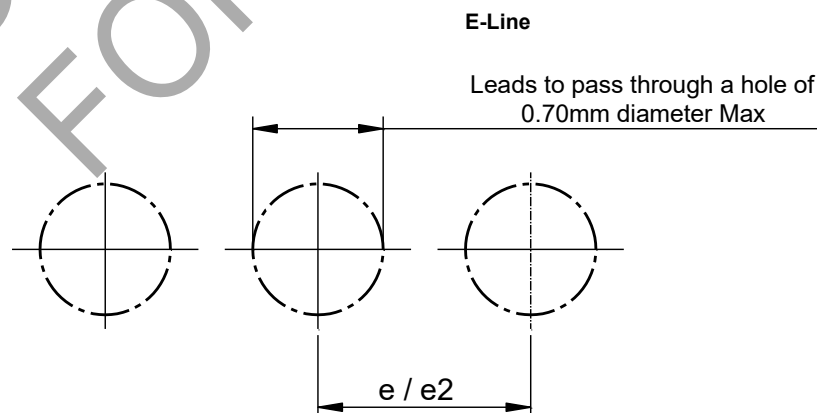
Package Outline Dimensions

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



Suggested Pad Layout

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



IMPORTANT NOTICE

1. DIODES INCORPORATED (Diodes) AND ITS SUBSIDIARIES 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 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.
9. This Notice may be periodically updated with the most recent version available at <https://www.diodes.com/about/company/terms-and-conditions/important-notice>

The Diodes logo is a registered trademark of Diodes Incorporated in the United States and other countries.
All other trademarks are the property of their respective owners.
© 2026 Diodes Incorporated. All Rights Reserved.

www.diodes.com