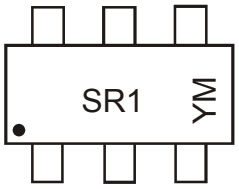
Marking Information



SR1 = Product Type Marking Code,
YM = Date Code Marking
Y = Year, e.g., H = 2020
M = Month, e.g., 9 = September

Date Code Key

Year	2010	…	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Code	X	…	G	H	I	J	K	L	M	N	O	P

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
Power Dissipation (Note 5)	P_d	200	mW
Output Current	I_{out}	200	mA

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

Sub-Component Device: ESD Protected N-Channel MOSFET (Q1)

Characteristic		Symbol	Value	Unit
Drain Source Voltage		V_{DSS}	60	V
Drain Gate Voltage (RGS <+ 1MOhm)		V_{DGR}	60	V
Gate Source Voltage	Continuous	V_{GSS}	+/-20	V
Drain Current (Note 5)	Continuous (V_{gs}=10V)	I_D	200	mA

Maximum Ratings @ T_A = 25°C unless otherwise specified

Sub-Component Device: Schottky Diode (D1)

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	40	V
RMS Reverse Voltage	$V_{R(RMS)}$	28	V
Forward Continuous Current (Note 5)	I_{FM}	350	mA
Non-Repetitive Peak Forward Surge Current @ t<1.0 s	I_{FSM}	1.5	A

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Junction Operation and Storage Temperature Range	T_j, T_{stg}	-55 to +150	°C
Thermal Resistance, Junction to Ambient Air (Note 5) (Equivalent to one heated junction of N-MOSFET)	$R_{\theta JA}$	625	°C/W

Note: 5. Device mounted on FR-4 PCB, 1 inch square, 2oz copper pad area.

Electrical Characteristics @ T_A = 25°C unless otherwise specified

Sub-Component Device: ESD Protected N-Channel MOSFET (Q1)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 6)						
Drain-Source Breakdown Voltage, BV_{DSS}	$V_{BR(DSS)}$	60	—	—	V	V_{GS} = 0V, I_D = 10μA
Zero Gate Voltage Drain Current (Drain Leakage Current)	I_{DSS}	—	—	1	μA	V_{GS} = 0V, V_{DS} = 60V
Gate Body Leakage Current, Forward	I_{GSSF}	—	—	10	μA	V_{GS} = 20V, V_{DS} = 0V
Gate Body Leakage Current, Reverse	I_{GSSR}	—	—	-10	μA	V_{GS} = -20 V, V_{DS} = 0V
ON CHARACTERISTICS (Note 6)						
Gate Source Threshold Voltage (Control Supply Voltage)	$V_{GS(th)}$	1	1.6	2.5	V	V_{DS} = V_{GS}=10V, I_D = 0.25mA
		1.1	1.8	3	V	V_{DS} = V_{GS} = 10V, I_D = 1mA
Static Drain-Source On-State Voltage	$V_{DS(on)}$	—	0.09	1.5	V	V_{GS} = 5V, I_D = 50mA
		—	0.62	1.25	V	V_{GS} = 10V, I_D = 500mA
Static Drain-Source On Resistance	$R_{DS\ (on)}$	—	1.6	3	Ω	V_{GS} = 5V, I_D= 50mA
		—	1.5	2		V_{GS} = 10V, I_D = 500mA
Forward Transconductance	g_{FS}	80	420	—	mS	V_{DS} >=2*$V_{DS(ON)}$, I_D=200mA
Dynamic Characteristics						
Input Capacitance	C_{iss}	—	—	50	pF	V_{DS} = 25V, V_{GS} = 0V, f = 1MHz
Output Capacitance	C_{oss}	—	—	25	pF	
Reverse Transfer Capacitance	C_{rss}	—	—	5	pF	
Switching Characteristics						
Turn-On Delay Time	$t_{d(on)}$	—	—	20	ns	—
Turn-Off Delay Time	$t_{d(off)}$	—		40	ns	—
Drain-Source (Body) Diode Characteristics and Maximum Ratings						
Drain-Source Diode Forward On-Voltage	V_{SD}	—	0.88	1.5	V	V_{GS} = 0V, I_S = 300 mA

Electrical Characteristics @ T_A = 25°C unless otherwise specified

Sub-Component Device: Schottky Barrier Diode (D1)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 6)	$V_{(BR)R}$	40	—	—	V	I_R = 10μA
Forward Voltage Drop (Note 6)	V_{FM}	—	—	0.37	V	I_F =20mA
		—	—	0.6		I_F =200mA
Peak Reverse Current (Note 6)	I_{RM}	—	—	5	μA	V_R = 30V
Total Capacitance	C_T	—	39	—	pF	V_R = 0V, f = 1.0 MHz
Reverse Recovery Time	t_{rr}	—	10	—	ns	I_F=I_R= 30 mA, I_{rr} = 0.1xI_R, R_L= 100 Ω

Note: 6. Short duration pulse test used to minimize self-heating effect.

Typical Characteristics

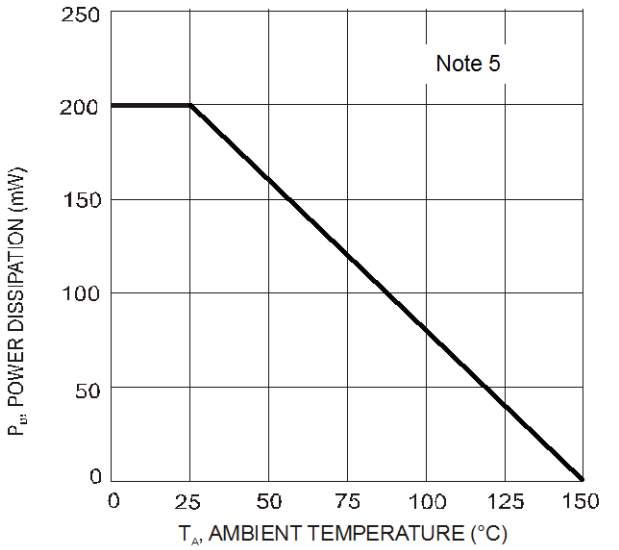


Fig. 1 Max Power Dissipation vs. Ambient Temperature

Typical N-Channel Characteristics

Sub-Component Device: MOSFET-Q1 (ESD Protected)

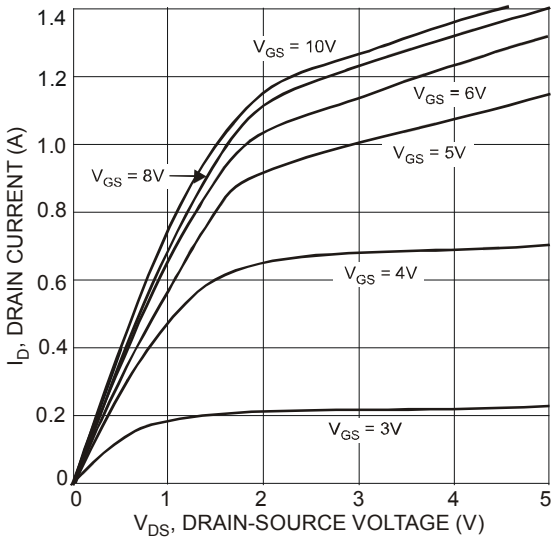


Fig. 2 Output Characteristics

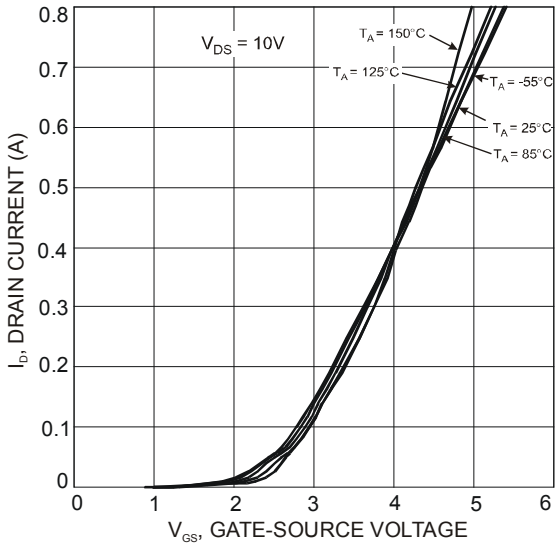


Fig. 3 Transfer Characteristics

Typical N-Channel Characteristics (cont.)

Sub-Component Device: MOSFET-Q1 (ESD Protected)

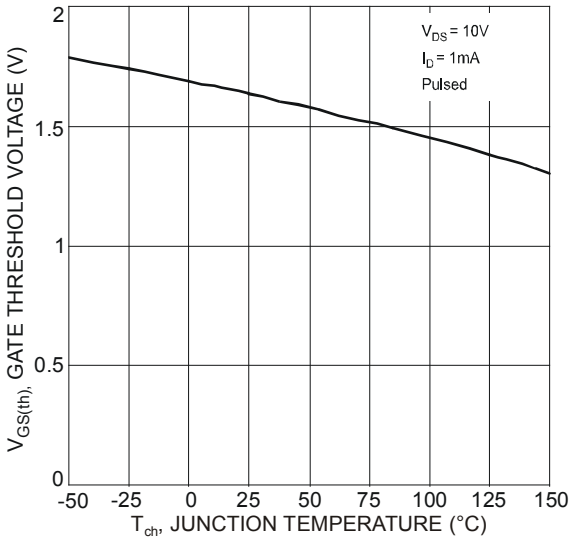


Fig. 4 Gate Threshold Voltage vs. Junction Temperature

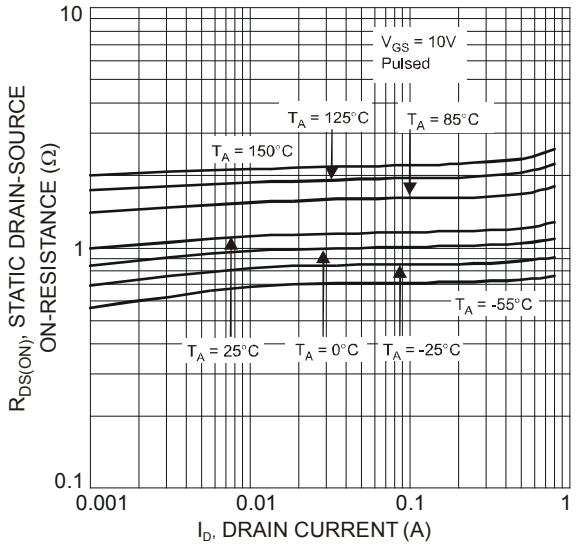


Fig. 5 Static Drain-Source On-Resistance vs. Drain Current

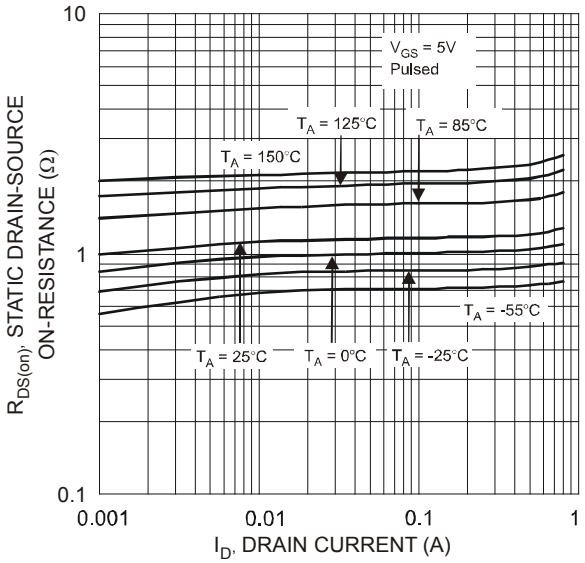


Fig. 6 Static Drain-Source On-Resistance vs. Drain Current

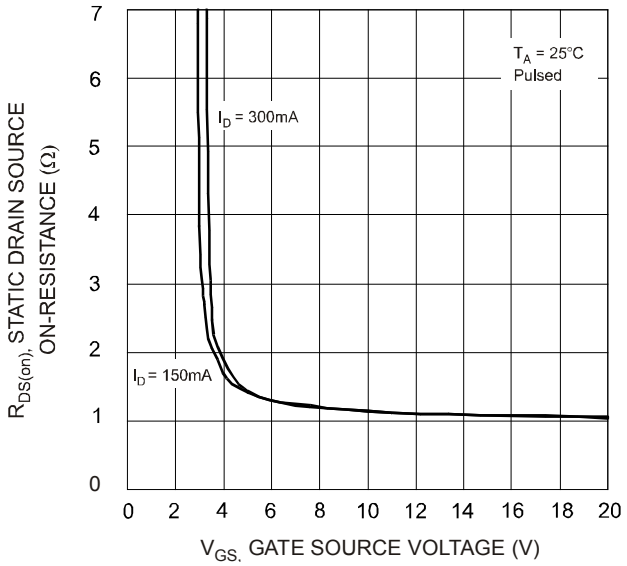


Fig. 7 Static Drain-Source On-Resistance vs. Gate-Source Voltage

Typical N-Channel Characteristics (cont.)

Sub-Component Device: MOSFET-Q1 (ESD Protected)

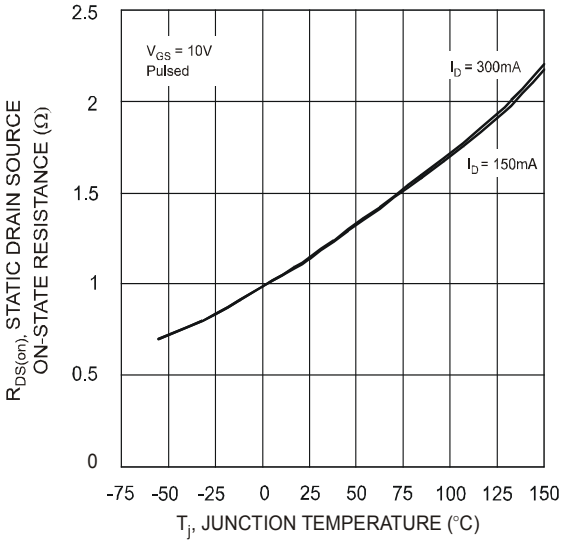


Fig. 8 Static Drain-Source On-State Resistance vs. Junction Temperature

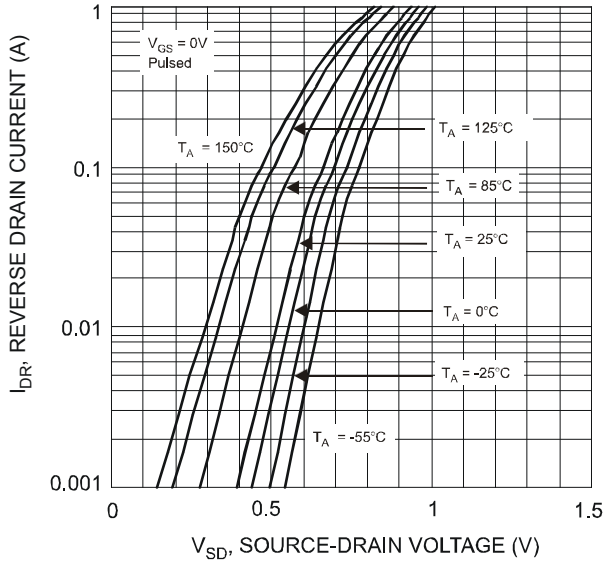


Fig. 9 Reverse Drain Current vs. Source-Drain Voltage

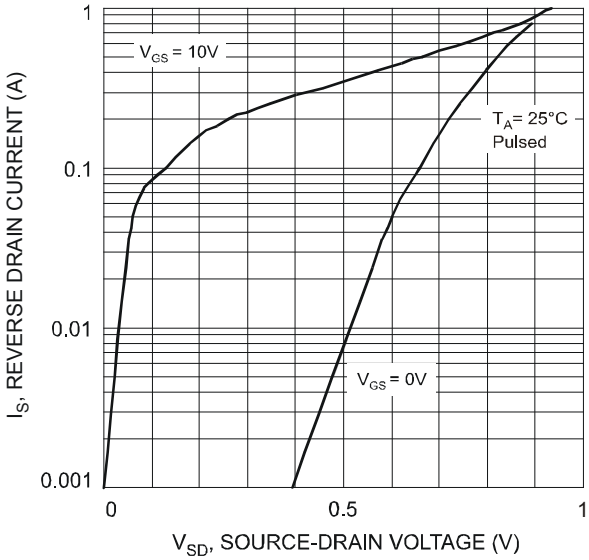


Fig. 10 Reverse Drain Current vs. Body Diode Forward Voltage

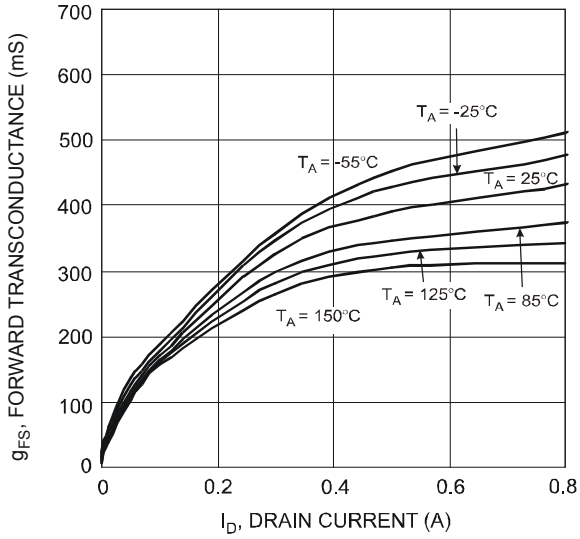


Fig. 11 Forward Transconductance vs. Drain Current (V_{DS}>I_D *$R_{DS(ON)}$)

Typical Characteristics

Sub-Component Device: Schottky Barrier Diode (D1)

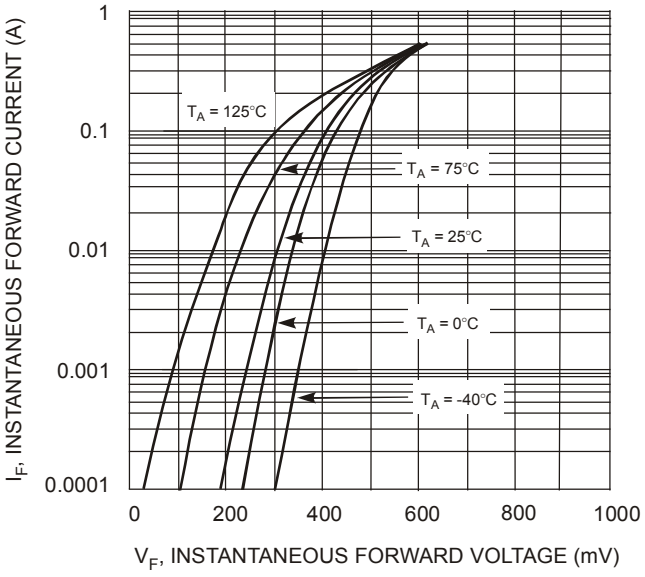


Fig. 12 Forward Characteristics

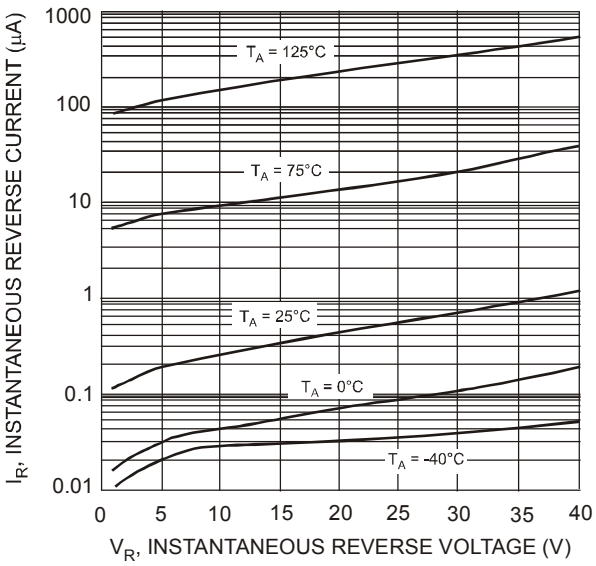


Fig. 13 Reverse Characteristics

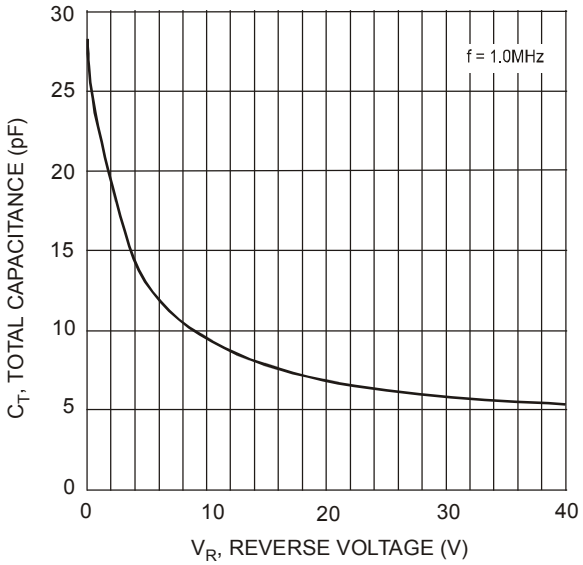
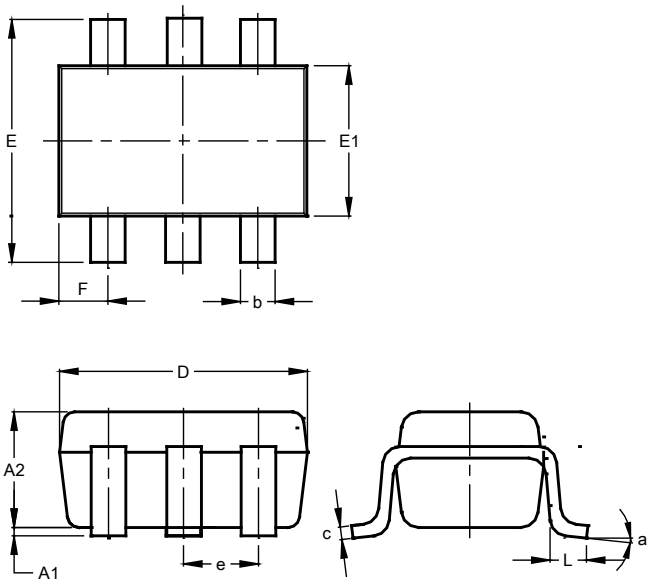


Fig. 14 Total Capacitance vs. Reverse Voltage

Package Outline Dimensions

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

SOT363

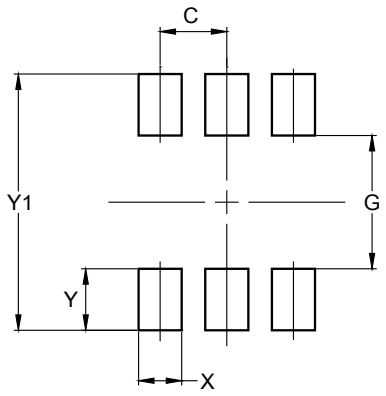


SOT363			
Dim	**Min**	**Max**	**Typ**
A1	0.00	0.10	0.05
A2	0.90	1.00	0.95
b	0.10	0.30	0.25
c	0.10	0.22	0.11
D	1.80	2.20	2.15
E	2.00	2.20	2.10
E1	1.15	1.35	1.30
e	0.650 BSC		
F	0.40	0.45	0.425
L	0.25	0.40	0.30
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

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

SOT363



Dimensions	Value (in mm)
C	0.650
G	1.300
X	0.420
Y	0.600
Y1	2.500

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