

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

Characteristic	Symbol	Value	Unit		
Drain-Source Voltage		V_{DSS}	100	V	
Gate-Source Voltage	Continuous	V_{GSS}	±20	V	
Continuous Drain Correct (Note 5) // 40/	Continuous	I _D	170	mA	
Continuous Drain Current (Note 5) V _{GS} = 10V	Pulsed	I _{DM}	680		

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

Characteristic	Symbol	Max	Unit
Power Dissipation (Note 5)	P _D	300	mW
Thermal Resistance, Junction to Ambient @T _A = +25°C (Note 5)	$R_{\theta JA}$	417	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

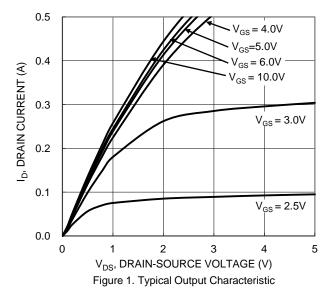
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition	
OFF CHARACTERISTICS (Note 6)							
Drain-Source Breakdown Voltage	BV _{DSS}	100	-	-	V	$V_{GS} = 0V, I_D = 250\mu A$	
		-	-	0.1	μА	V _{DS} = 100V, V _{GS} = 0V	
Zero Gate Voltage Drain Current	I _{DSS}	-	-	30	μА	$V_{DS} = 100V, V_{GS} = 0V$ @ $T_A = +150$ °C (Note 7)	
		-	-	10	nA	$V_{DS} = 20V, V_{GS} = 0V$	
Gate-Source Leakage , Forward	I _{GSSF}	-	-	50	nA	$V_{GS} = 20V, V_{DS} = 0V$	
ON CHARACTERISTICS (Note 6)							
Gate Threshold Voltage	V _{GS(TH)}	0.8	1.4	2.0	V	$V_{DS} = V_{GS}$, $I_D = 1mA$	
Static Drain-Source On-Resistance	R _{DS(ON)}	-	-	6.0	Ω	$V_{GS} = 10V, I_D = 0.17A$	
Static Drain-Source On-Resistance		-	-	10		$V_{GS} = 4.5V, I_D = 0.17A$	
Forward Transfer Admittance	g FS	80	370	-	ms	$V_{DS} = 10V$, $I_D = 0.17A$, $f = 1.0KHz$	
Diode Forward Voltage	V _{SD}	-	0.84	1.3	V	$V_{GS} = 0V, I_S = 0.34A$	
DYNAMIC CHARACTERISTICS (Note 7)							
Input Capacitance	C _{iss}	-	22	60			
Output Capacitance	Coss	-	3.5	15	pF	$V_{DS} = 25V$, $V_{GS} = 0V$, $f = 1.0MHz$	
Reverse Transfer Capacitance	C _{rss}	-	2.0	6			
SWITCHING CHARACTERISTICS (Note 7)							
Turn-On Delay Time	t _{D(ON)}	-	-	8	ns	$V_{GS} = 10V, V_{DD} = 30V,$ $I_{D} = 0.28A, R_{GEN} = 50\Omega$	
Turn-On Rise Time	t _R	-	-	8	ns		
Turn-Off Delay Time	t _{D(OFF)}	-	-	13	ns		
Turn-Off Fall Time	t _F	-	-	16	ns		

Notes:

- 5. Part mounted on FR-4 board with recommended pad layout, which can be found on our website at http://www.diodes.com/package-outlines.html.
- Short duration pulse test used to minimize self-heating effect.
 Guaranteed by design. Not subject to production testing.





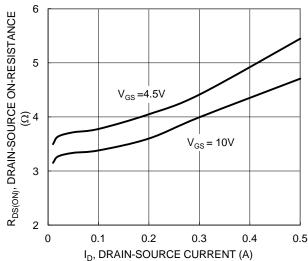


Figure 3. Typical On-Resistance vs. Drain Current and Gate Voltage

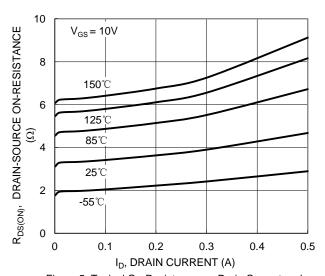
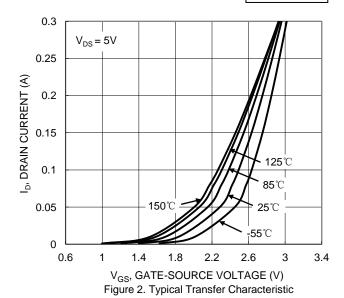
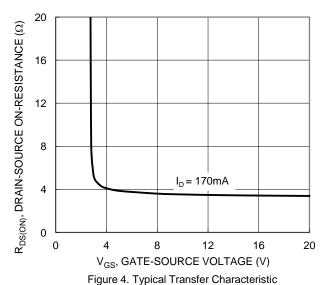


Figure 5. Typical On-Resistance vs. Drain Current and Junction Temperature





2 R_{DS(ON)}, DRAIN-SOURCE ON-RESISTANCE (NORMALIZED) $V_{GS} = 10V, I_D = 170mA$ 1.8 1.6 1.4 1.2 $V_{GS} = 4.5 V, I_{D}$ 170mA 1 8.0 0.6 -50 -25 0 25 50 75 100 125 150

 $T_J, JUNCTION TEMPERATURE (^{\mathbb{C}})$ Figure 6. On-Resistance Variation with Junction Temperature



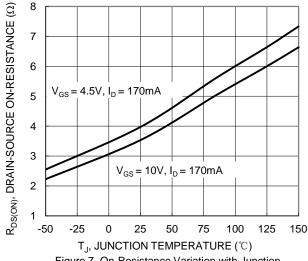
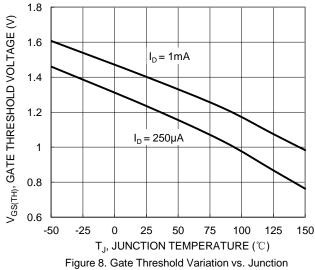


Figure 7. On-Resistance Variation with Junction Temperature



Temperature

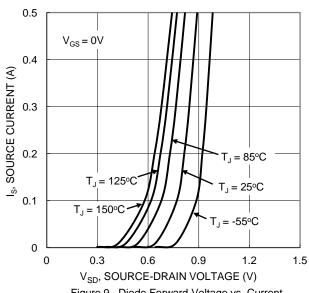
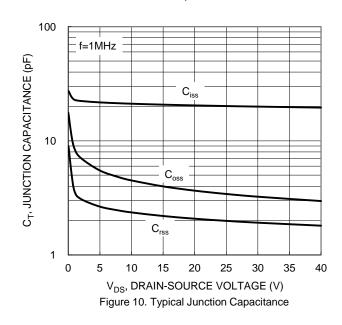
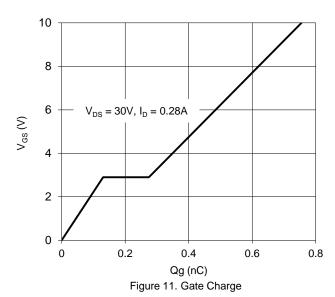


Figure 9. Diode Forward Voltage vs. Current





 $R_{DS(ON)}$ Limited =100µs ID, DRAIN CURRENT (A) 0.1 $P_W = 10 \text{ms}$ P_W =100ms 0.01 $T_{J(Max)} = 150^{\circ}C$ $T_C = 25^{\circ}C$ =1sSingle Pulse DUT on 1*MRP Board DC V_{G\$}= 10V 0.001 100 0.1 10 1000 V_{DS}, DRAIN-SOURCE VOLTAGE (V)

Figure 12. SOA, Safe Operation Area



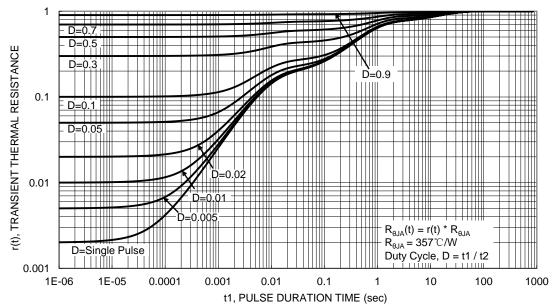


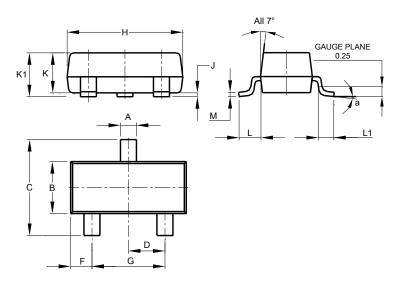
Figure 13. Transient Thermal Resistance



Package Outline Dimensions

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

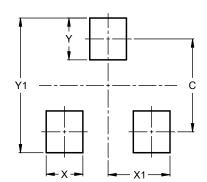
SOT23



SOT23					
Dim	Min	Max	Тур		
Α	0.37	0.51	0.40		
В	1.20	1.40	1.30		
С	2.30	2.50	2.40		
D	0.89	1.03	0.915		
F	0.45	0.60	0.535		
G	1.78	2.05	1.83		
Н	2.80	3.00	2.90		
J	0.013	0.10	0.05		
K	0.890	1.00	0.975		
K1	0.903	1.10	1.025		
L	0.45	0.61	0.55		
L1	0.25	0.55	0.40		
М	0.085	0.150	0.110		
а	0°	8°			
All Dimensions in mm					

Suggested Pad Layout

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



SOT23

Dimensions	Value (in mm)
С	2.0
X	0.8
X1	1.35
Y	0.9
Y1	2.9



IMPORTANT NOTICE

DIODES INCORPORATED MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARDS TO THIS DOCUMENT, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION).

Diodes Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to this document and any product described herein. Diodes Incorporated does not assume any liability arising out of the application or use of this document or any product described herein; neither does Diodes Incorporated convey any license under its patent or trademark rights, nor the rights of others. Any Customer or user of this document or products described herein in such applications shall assume all risks of such use and will agree to hold Diodes Incorporated and all the companies whose products are represented on Diodes Incorporated website, harmless against all damages.

Diodes Incorporated does not warrant or accept any liability whatsoever in respect of any products purchased through unauthorized sales channel. Should Customers purchase or use Diodes Incorporated products for any unintended or unauthorized application, Customers shall indemnify and hold Diodes Incorporated and its representatives harmless against all claims, damages, expenses, and attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized application.

Products described herein may be covered by one or more United States, international or foreign patents pending. Product names and markings noted herein may also be covered by one or more United States, international or foreign trademarks.

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 Incorporated.

LIFE SUPPORT

Diodes Incorporated products are specifically not authorized for use as critical components in life support devices or systems without the express written approval of the Chief Executive Officer of Diodes Incorporated. As used herein:

- A. Life support devices or systems are devices or systems which:
 - 1. are intended to implant into the body, or
 - 2. support or sustain life and whose failure to perform when properly used in accordance with instructions for use provided in the labeling can be reasonably expected to result in significant injury to the user.
- B. A critical component is any component in a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or to affect its safety or effectiveness.

Customers represent that they have all necessary expertise in the safety and regulatory ramifications of their life support devices or systems, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of Diodes Incorporated products in such safety-critical, life support devices or systems, notwithstanding any devices- or systems-related information or support that may be provided by Diodes Incorporated. Further, Customers must fully indemnify Diodes Incorporated and its representatives against any damages arising out of the use of Diodes Incorporated products in such safety-critical, life support devices or systems.

Copyright © 2019, Diodes Incorporated

www.diodes.com