

Product Summary

Device	$V_{(BR)DSS}$	$R_{DS(ON)}$ max	I_D max $T_A = +25^\circ\text{C}$
Q1	30	$0.4\Omega @ V_{GS} = 10\text{V}$	0.65A
		$0.7\Omega @ V_{GS} = 4.5\text{V}$	0.52A
Q2	-30	$0.9\Omega @ V_{GS} = -10\text{V}$	-0.45A
		$1.7\Omega @ V_{GS} = -4.5\text{V}$	-0.33A

Description and Applications

This MOSFET is designed to minimize the on-state resistance ($R_{DS(ON)}$) and yet maintain superior switching performance, making it ideal for high efficiency power management applications.

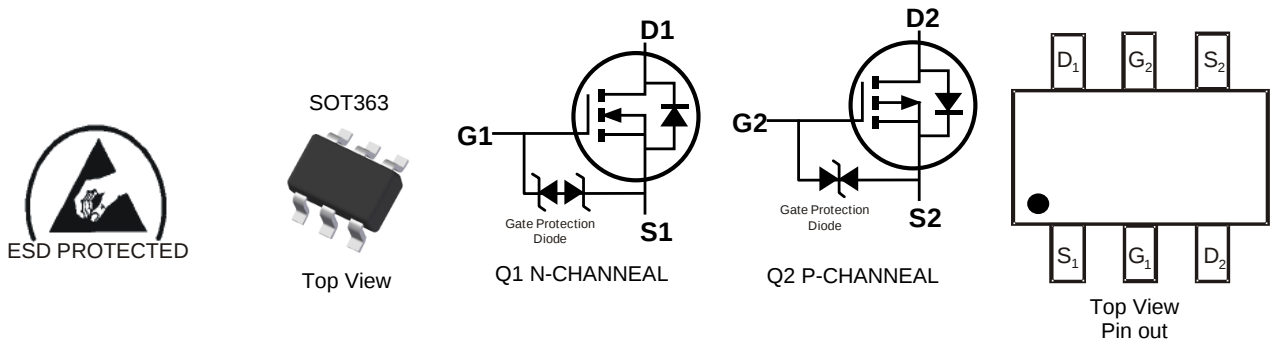
- Motor Control
- Power Management Functions
- DC-DC Converters

Features and Benefits

- Low On-Resistance
- Low Input Capacitance
- Fast Switching Speed
- **ESD Protected Gate**
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

Mechanical Data

- Case: SOT363
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections Indicator: See Diagram
- Terminals: Finish — Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 @3
- Weight: 0.027 grams (Approximate)

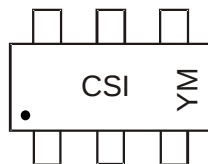


Ordering Information (Note 4)

Part Number	Case	Packaging
DMC3400SDW-7	SOT363	3000/Tape & Reel
DMC3400SDW-13	SOT363	10000/Tape & Reel

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
 2. See http://www.diodes.com/quality/lead_free.html 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. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

Marking Information



CSI = Product Type Marking Code
YM = Date Code Marking
Y or Y= Year (ex: B = 2014)
M = Month (ex: 9 = September)

Date Code Key

Date Code Key

Year	2014	2015	2016	2017	2018	2019	2020
Code	B	C	D	E	F	G	H

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_Q1	Value_Q2	Units
Drain-Source Voltage			V _{DSS}	30	-30	V
Gate-Source Voltage			V _{GSS}	±20	±20	V
Continuous Drain Current (Note 6) V _{GS} = 10V	Steady State	T _A = +25°C	I _D	0.65	-0.45	A
		T _A = +70°C		0.50	-0.36	
Maximum Continuous Body Diode Forward Current (Note 6)			I _S	0.4	-0.35	A
Pulsed Drain Current (10μs Pulse, Duty Cycle = 1%)			I _{DM}	4	-3	A

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

Characteristic		Symbol	Value	Units
Total Power Dissipation (Note 5)		P _D	0.31	W
Thermal Resistance, Junction to Ambient (Note 5)	Steady State	R _{θJA}	406	°C/W
Total Power Dissipation (Note 6)		P _D	0.39	W
Thermal Resistance, Junction to Ambient (Note 6)	Steady State	R _{θJA}	319	°C/W
Thermal Resistance, Junction to Case		R _{θJC}	126	°C/W
Operating and Storage Temperature Range		T _J , T _{STG}	-55 to +150	°C

Electrical Characteristics – N Channel – Q1 (@T_A = +25°C, unless otherwise specified.)

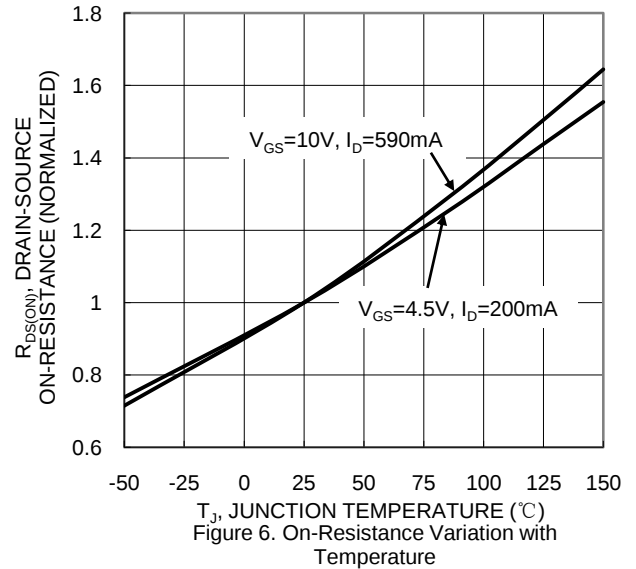
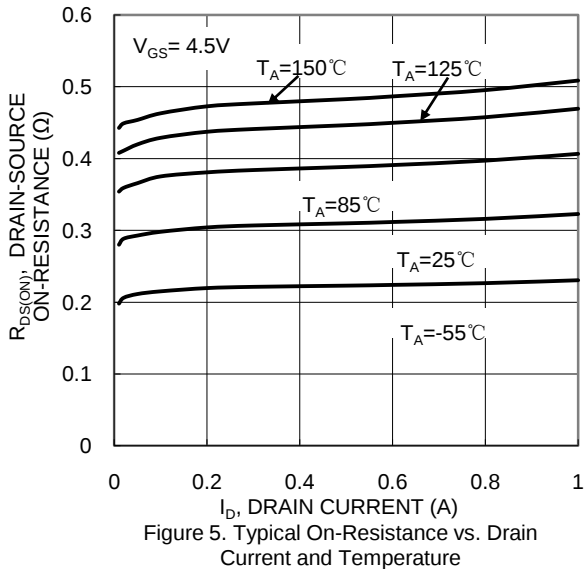
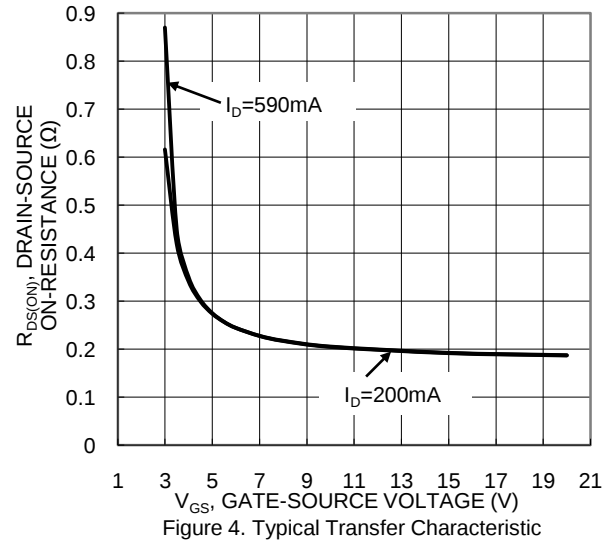
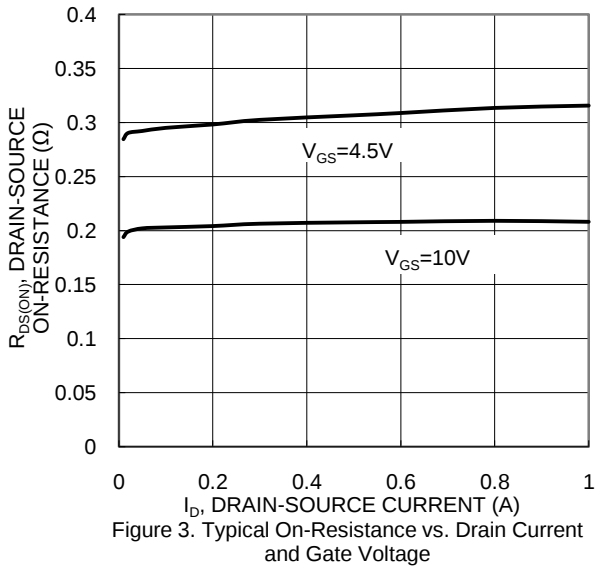
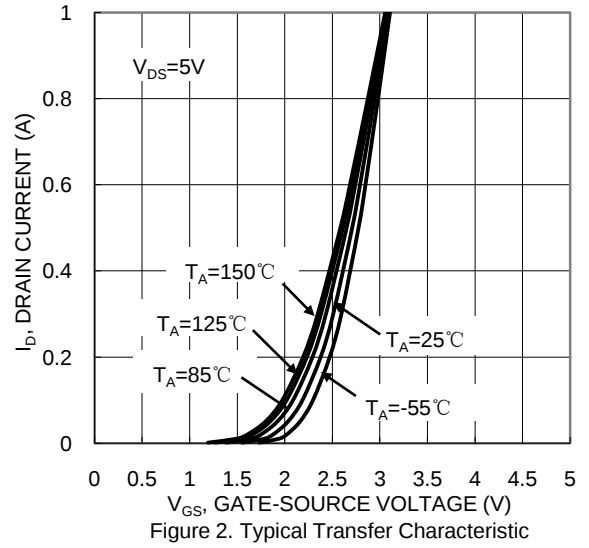
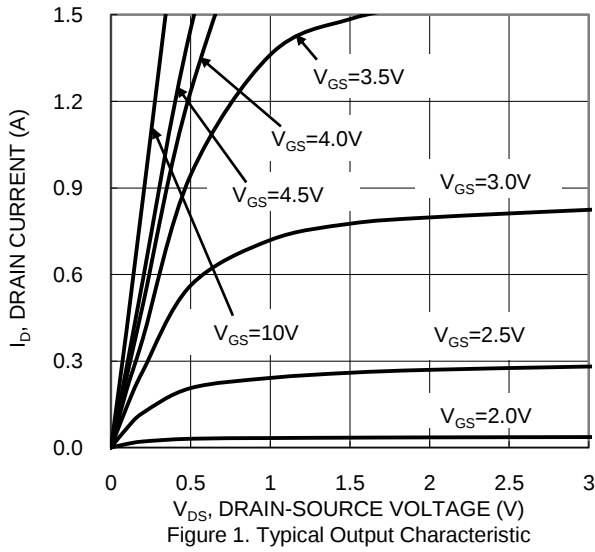
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 7)						
Drain-Source Breakdown Voltage	BV _{DSS}	30	-	-	V	V _{GS} = 0V, I _D = 250μA
Zero Gate Voltage Drain Current	I _{DSS}	-	-	1	μA	V _{DS} = 24V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	-	-	±10	μA	V _{GS} = ±16V, V _{DS} = 0V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	V _{GS(TH)}	0.8	-	1.6	V	V _{DS} = V _{GS} , I _D = 250μA
Static Drain-Source On-Resistance	R _{DS(ON)}	-	0.2	0.4	Ω	V _{GS} = 10V, I _D = 0.59A
		-	0.3	0.7		V _{GS} = 4.5V, I _D = 0.2A
Diode Forward Voltage	V _{SD}	-	0.8	1.2	V	V _{GS} = 0V, I _S = 0.23A
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C _{iss}	-	55	-	pF	V _{DS} = 15V, V _{GS} = 0V, f = 1.0MHz
Output Capacitance	C _{oss}	-	8.5	-	pF	
Reverse Transfer Capacitance	C _{rss}	-	6.5	-	pF	
Gate Resistance	R _g	-	92	-	Ω	V _{DS} = V _{GS} = 0V, f = 1.0MHz
Total Gate Charge (V _{GS} = 4.5V)	Q _g	-	0.6	-	nC	V _{DS} = 10V, I _D = 250mA
Total Gate Charge (V _{GS} = 10V)	Q _g	-	1.4	-	nC	
Gate-Source Charge	Q _{gs}	-	0.2	-	nC	
Gate-Drain Charge	Q _{gd}	-	0.1	-	nC	
Turn-On Delay Time	t _{D(ON)}	-	3.8	-	ns	V _{GS} = 10V, V _{DS} = 30V, I _D = 100mA, R _G = 1Ω
Turn-On Rise Time	t _R	-	3.5	-	ns	
Turn-Off Delay Time	t _{D(OFF)}	-	25.2	-	ns	
Turn-Off Fall Time	t _F	-	18.8	-	ns	

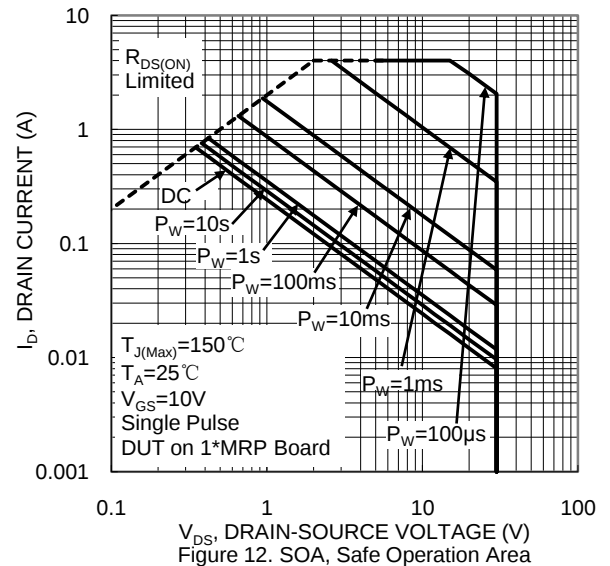
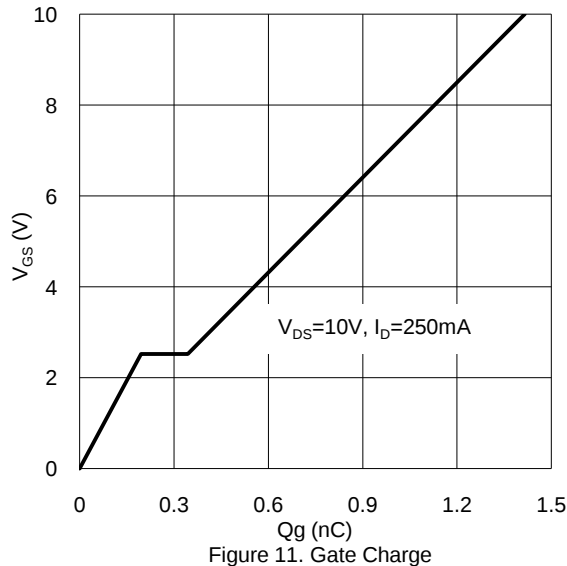
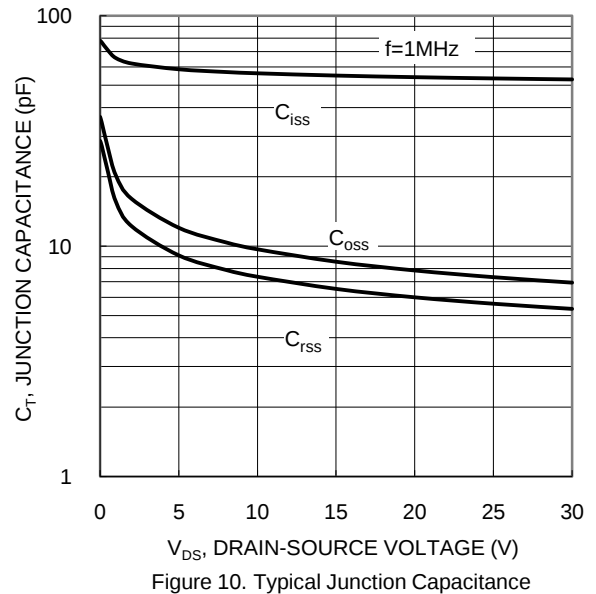
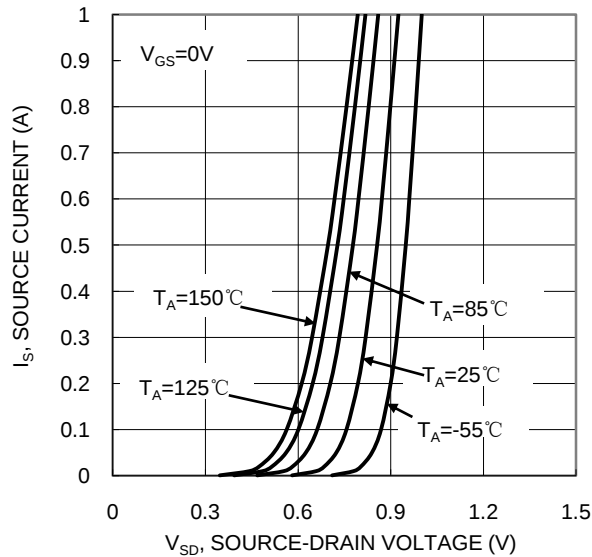
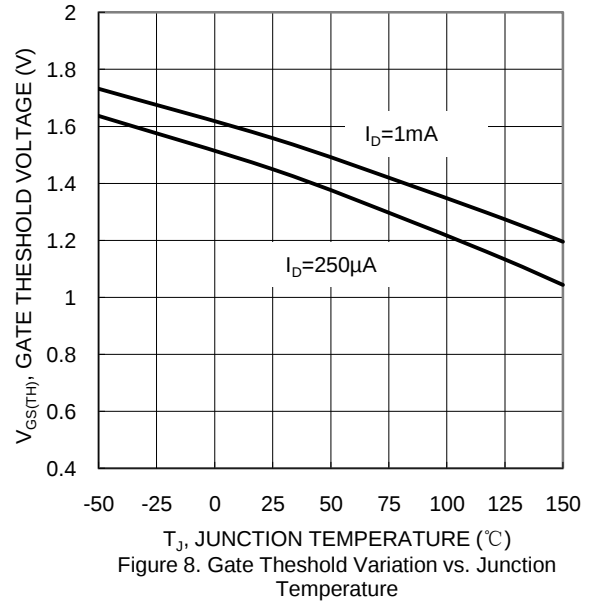
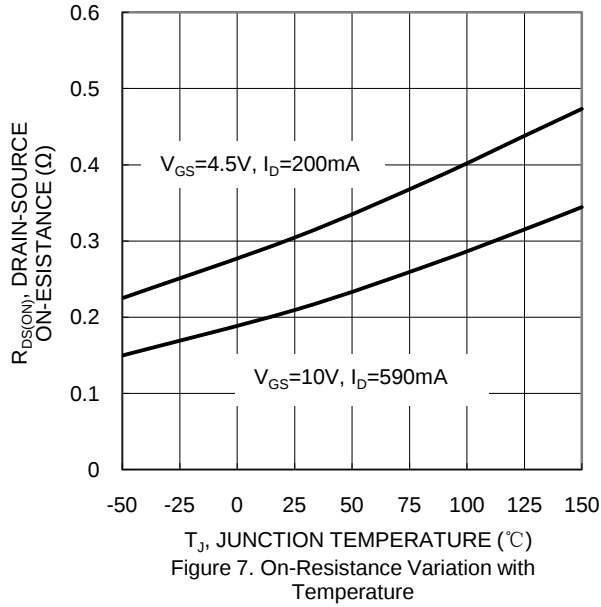
Electrical Characteristics – P Channel – Q2 (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 7)						
Drain-Source Breakdown Voltage	BV _{DSS}	-30	-	-	V	V _{GS} = 0V, I _D = -250μA
Zero Gate Voltage Drain Current	I _{DSS}	-	-	-1	μA	V _{DS} = -24V, V _{GS} = 0V
Gate-Source Leakage	I _{GSS}	-	-	±10	μA	V _{GS} = ±16V, V _{DS} = 0V
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	V _{GS(TH)}	-1	-	-2.6	V	V _{DS} = V _{GS} , I _D = -250μA
Static Drain-Source On-Resistance	R _{DS(ON)}	-	0.36	0.9	Ω	V _{GS} = -10V, I _D = -0.42A
		-	0.57	1.7		V _{GS} = -4.5V, I _D = -0.2A
Diode Forward Voltage	V _{SD}	-	-0.8	-1.2	V	V _{GS} = 0V, I _S = -0.23A
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	C _{iss}	-	54	-	pF	V _{DS} = -15V, V _{GS} = 0V, f = 1.0MHz
Output Capacitance	C _{oss}	-	10	-	pF	
Reverse Transfer Capacitance	C _{rss}	-	8.3	-	pF	
Gate Resistance	R _g	-	240	-	Ω	V _{DS} = V _{GS} = 0V, f = 1.0MHz
Total Gate Charge (V _{GS} = -4.5V)	Q _g	-	0.6	-	nC	V _{DS} = -10V, I _D = -0.24A
Total Gate Charge (V _{GS} = -10V)	Q _g	-	1.3	-	nC	
Gate-Source Charge	Q _{gs}	-	0.2	-	nC	
Gate-Drain Charge	Q _{gd}	-	0.2	-	nC	
Turn-On Delay Time	t _{D(ON)}	-	5.7	-	ns	V _{GS} = -10V, V _{DD} = -15V, I _D = -0.5A, R _G = 1Ω
Turn-On Rise Time	t _R	-	8.8	-	ns	
Turn-Off Delay Time	t _{D(OFF)}	-	35	-	ns	
Turn-Off Fall Time	t _F	-	19	-	ns	

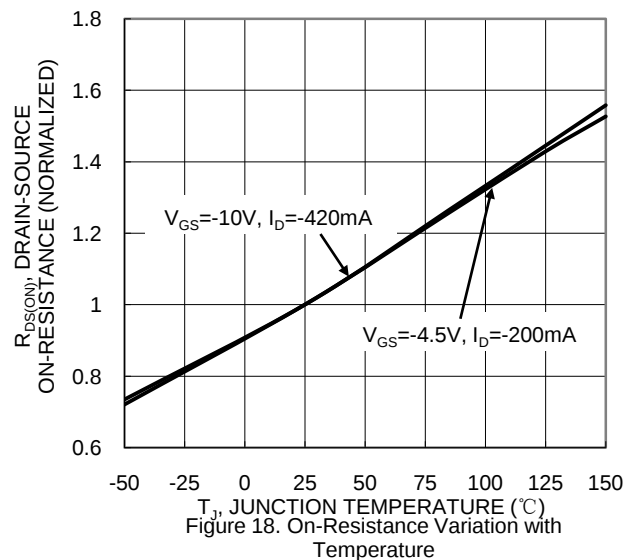
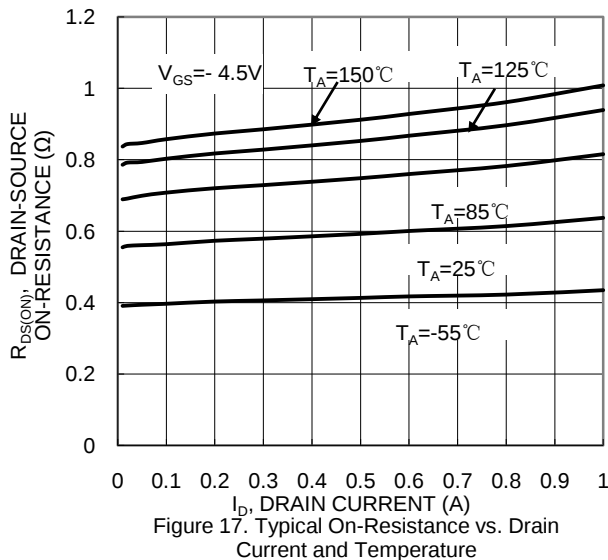
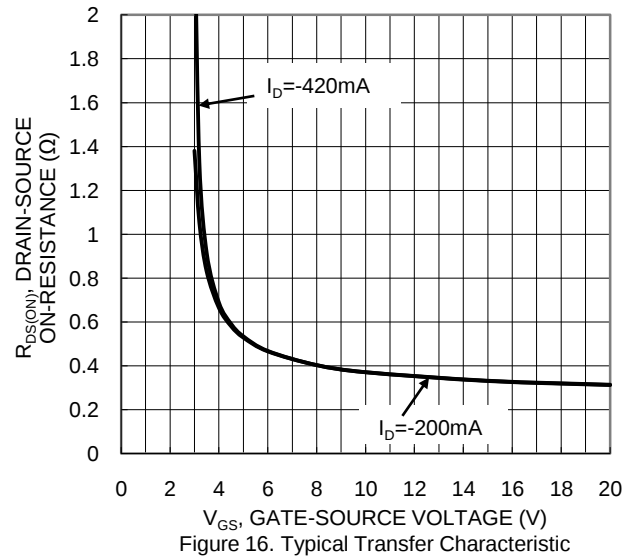
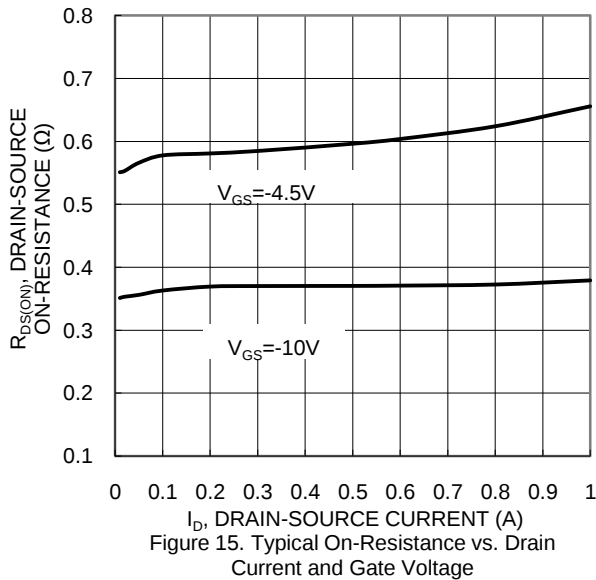
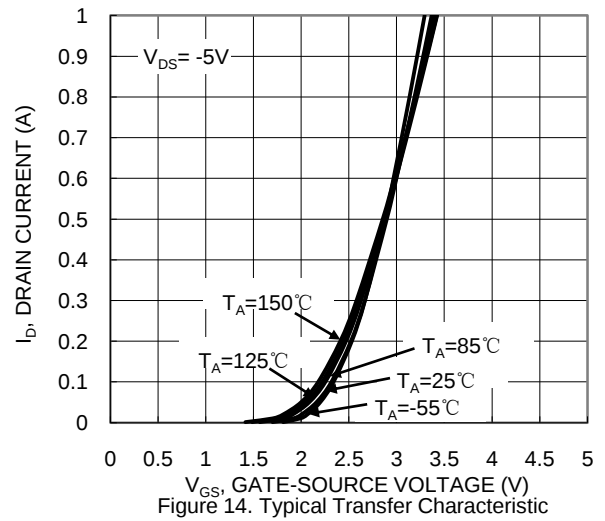
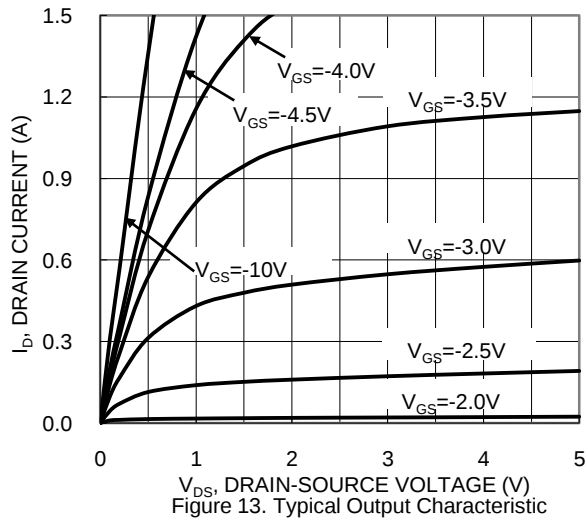
- Notes:
- Device mounted on FR-4 PCB, with minimum recommended pad layout.
 - Device mounted on 1" x 1" FR-4 PCB with high coverage 2oz. Copper, single sided.
 - Short duration pulse test used to minimize self-heating effect.
 - Guaranteed by design. Not subject to product testing.

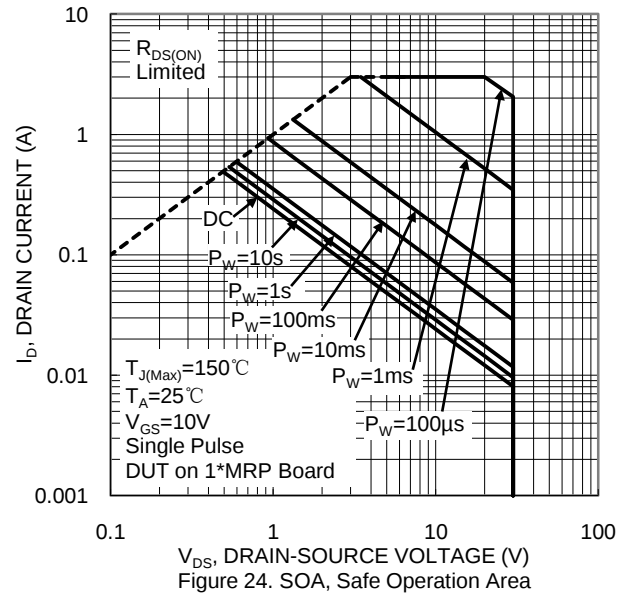
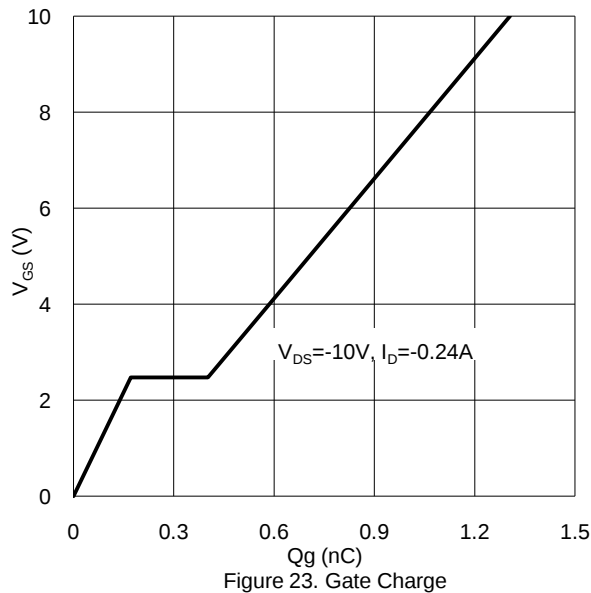
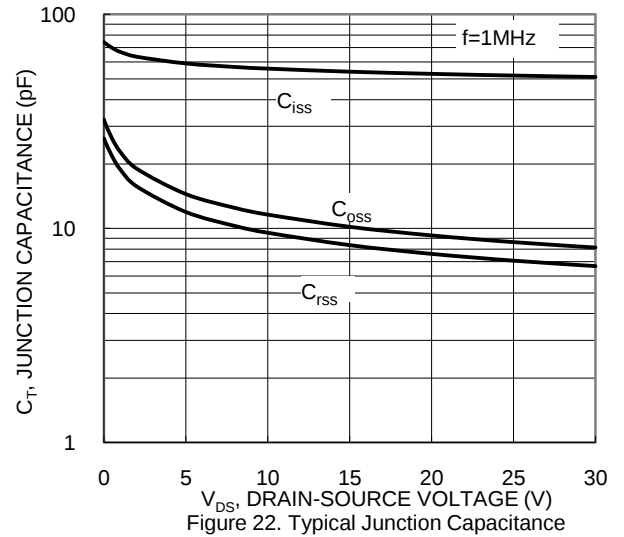
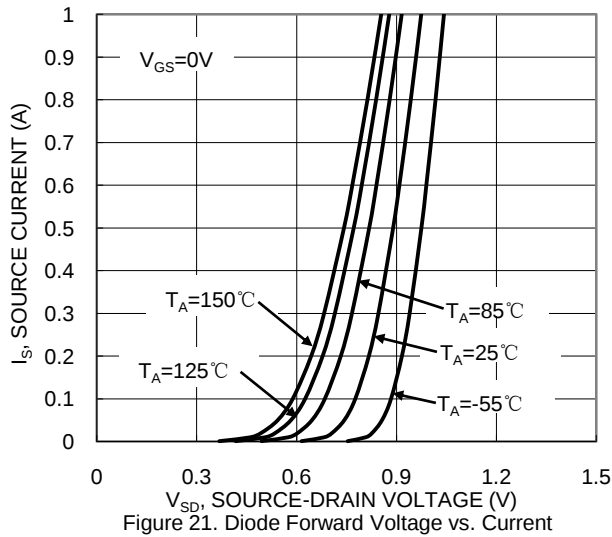
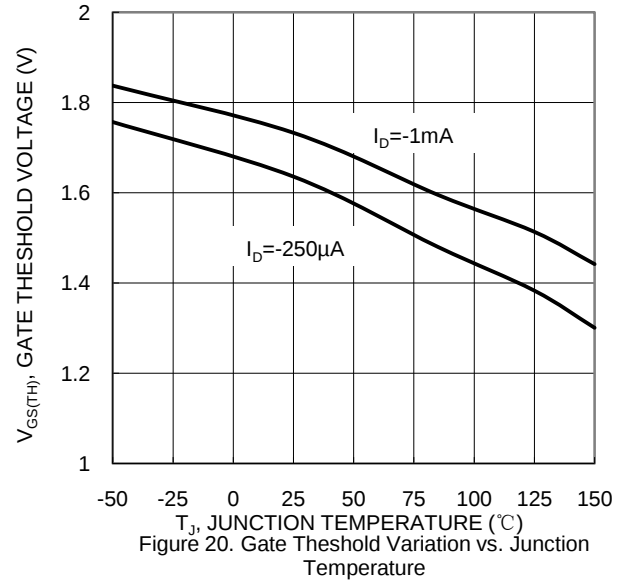
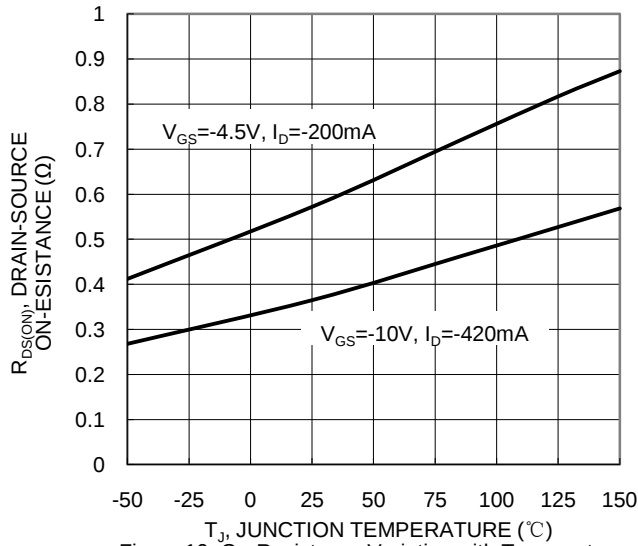
Typical Characteristics - N-CHANNEL





Typical Characteristics - P-CHANNEL





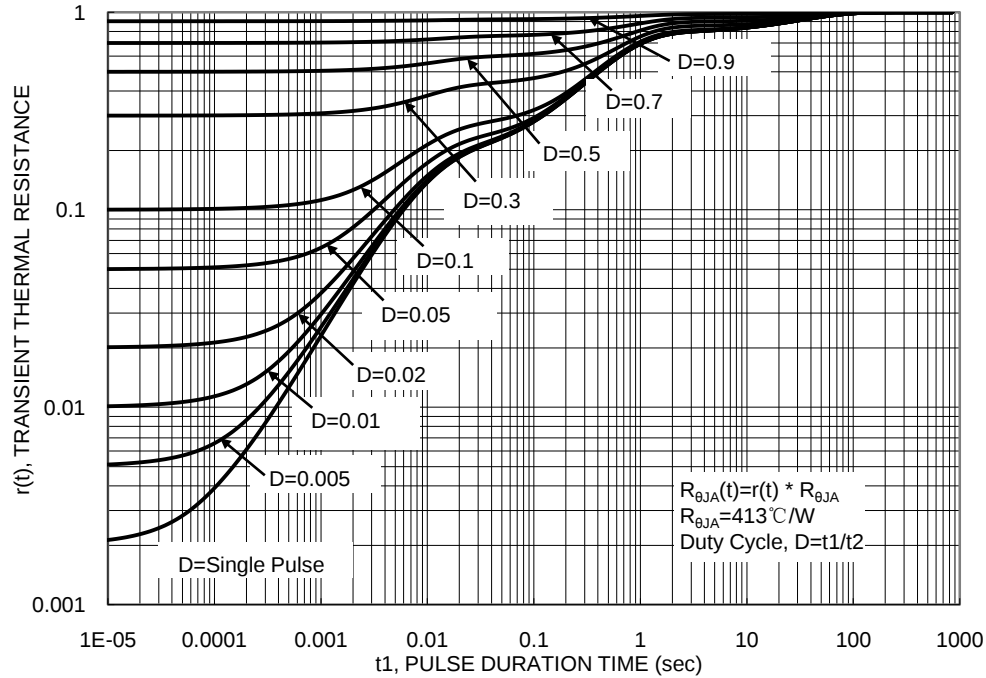
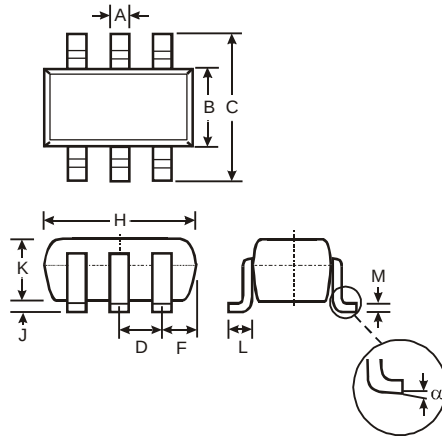


Figure 25. Transient Thermal Resistance

Package Outline Dimensions

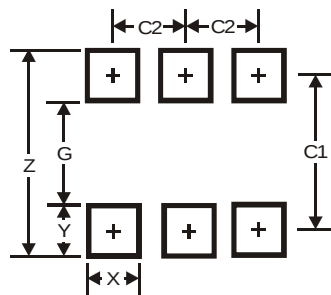
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> the for latest version.



SOT363			
Dim	Min	Max	Typ
A	0.10	0.30	0.25
B	1.15	1.35	1.30
C	2.00	2.20	2.10
D	0.65 Typ		
F	0.40	0.45	0.425
H	1.80	2.20	2.15
J	0	0.10	0.05
K	0.90	1.00	1.00
L	0.25	0.40	0.30
M	0.10	0.22	0.11
α	0°	8°	-
All Dimensions in mm			

Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> the for the latest version.



Dimensions	Value (in mm)
Z	2.5
G	1.3
X	0.42
Y	0.6
C1	1.9
C2	0.65

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