

Product Summary

Device	BVDSS	Rds(on)	ID Ta = +25°C
Q1	30V	$60m\Omega @ V_{GS} = 10V$	3.6A
QI		300	$100m\Omega @ V_{GS} = 4.5V$
Q2	-30V	95mΩ @ V _{GS} = -10V	-2.8A
Q2	-30V	140mΩ @ V _{GS} = -4.5V	-2.3A

Description

This new generation MOSFET is designed to minimize the on-state resistance (RDS(ON)) yet maintain superior switching performance, making it ideal for high efficiency power management applications.

Applications

- Backlighting
- **DC-DC Converters**
- **Power Management Functions**

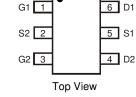
Features and Benefits

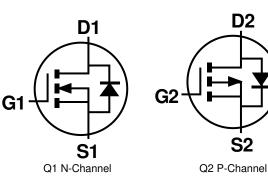
- Low On-Resistance •
- Low Input Capacitance •
- Fast Switching Speed •
- Low Input/Output Leakage •
- Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2) •
- Halogen and Antimony Free. "Green" Device (Note 3)
- The DMC3060LVTQ is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities. https://www.diodes.com/quality/product-definitions/

Mechanical Data

- Case: TSOT26
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals Connections: See Diagram
- Terminals: Finish Matte Tin Annealed over Copper Leadframe. Solderable per MIL-STD-202, Method 208 @3)
- Weight: 0.013 grams (Approximate)







Ordering Information (Note 4)

Top View

	Part Number	Case	Packaging			
	DMC3060LVTQ-7	TSOT26	3,000 / Tape & Reel			
	DMC3060LVTQ-13	TSOT26	10,000 / Tape & Reel			
Notes:	lotes: 1 No purposely added lead. Fully FU Directive 2002/95/EC (BoHS): 2011/65/FU (BoHS 2) & 2015/863/FU (BoHS 3) compliant					

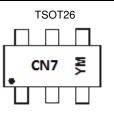
1. No purposely added lead, Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant,

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. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/.

Marking Information



CN7 = Product Type Marking Code YM = Date Code Marking Y = Year (ex: H = 2020)M = Month (ex: 9 = September)

Date Code Key

Duit Obuc hey												
Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Code	G	Н		J	K	L	М	N	0	Р	R	S
								-	-			_
Month	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec

DMC3060LVTQ

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

Characteristic	Symbol	Q1 Value	Q2 Value	Unit		
Drain-Source Voltage			VDSS	30	-30	V
Gate-Source Voltage			V _{GSS}	±12	±12	V
Continuous Drain Current (Note 6) N-Channel: V _{GS} = 4.5V P-Channel: V _{GS} = -4.5V	Steady State	T _A = +25°C T _A = +70°C	ld	3.6 2.8	-2.8 -2.2	А
Maximum Continuous Body Diode Forward Current	ls	1.1	-1.0	А		
Pulsed Drain Current (10µs Pulse, Duty Cycle = 1%	IDМ	16	-16	А		

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 5)	PD	0.83	W
Thermal Resistance, Junction to Ambient $@T_A = +25^{\circ}C$ (Note 5)	R _{0JA}	151	°C/W
Power Dissipation (Note 6)	PD	1.6	W
Thermal Resistance, Junction to Ambient $@T_A = +25^{\circ}C$ (Note 6)	Reja	108	°C/W
Operating and Storage Temperature Range	TJ, TSTG	-55 to +150	°C

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

Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 7)	-			•		·
Drain-Source Breakdown Voltage	BVDSS	30		—	V	$V_{GS} = 0V, I_D = 250 \mu A$
Zero Gate Voltage Drain Current	IDSS	-		1.0	μΑ	$V_{DS} = 24V, V_{GS} = 0V$
Gate-Source Leakage	IGSS			±100	nA	$V_{GS} = \pm 12V, V_{DS} = 0V$
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	V _{GS(TH)}	0.7	1.0	1.8	V	$V_{DS} = V_{GS}$, $I_D = 250 \mu A$
			42	60		VGS = 10V, ID = 3.1A
Static Drain-Source On-Resistance	RDS(ON)	—	45	100	mΩ	$V_{GS} = 4.5V, I_{D} = 2A$
			48	150		$V_{GS} = 3.3V, I_D = 1.5A$
Diode Forward Voltage	Vsd		0.8	1	V	$V_{GS} = 0V$, $I_{S} = 1A$
DYNAMIC CHARACTERISTICS (Note 8)						-
Input Capacitance	Ciss	_	395	—		
Output Capacitance	Coss	-	39	-	pF	V _{DS} = 15V, V _{GS} = 0V, f = 1.2MHz
Reverse Transfer Capacitance	Crss	_	26	—		1 = 1.20012
Gate Resistance	Rg	—	3.1	—	Ω	$V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$
Total Gate Charge (V _{GS} = 4.5V)	Qg	_	5.6	—		V _{DS} = 15V, V _{GS} = 4.5V, I _D = 3.1A
Total Gate Charge (V _{GS} = 10V)	Qg	_	11.3	—	nC	
Gate-Source Charge	Qgs	_	0.2	_	nc	V _{DS} = 15V, V _{GS} = 10V, I _D = 3A
Gate-Drain Charge	Qgd	_	1.8	_		
Turn-On Delay Time	tD(ON)	_	5.8	—		
Turn-On Rise Time	t _R		30.8	_		$V_{GS} = 10V, V_{DS} = 15V,$
Turn-Off Delay Time	tD(OFF)	_	18.3	—	ns	$R_G = 3\Omega, R_L = 4.7\Omega$
Turn-Off Fall Time	tF	_	2.7	—		

Notes:

Device mounted on FR-4 substrate PCB, 2oz copper, with minimum recommended pad layout.
Device mounted on FR-4 substrate PCB, 2oz copper, with 1inch square copper plate.
Short duration pulse test used to minimize self-heating effect.
Guaranteed by design. Not subject to production testing.



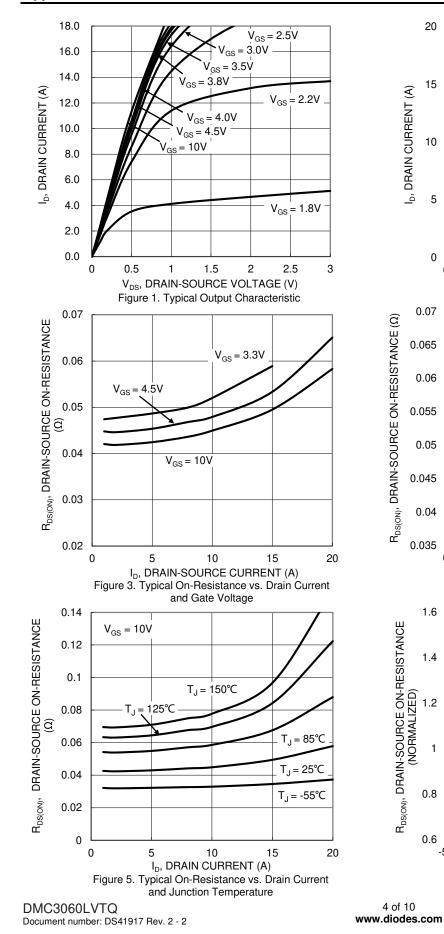
Electrical Characteristics – Q2 P-Channel (@TA = +25°C, unless otherwise specified.)

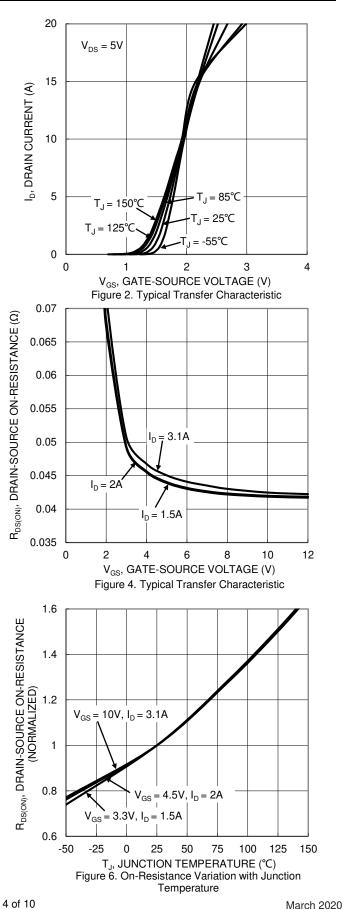
Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 7)			-			
Drain-Source Breakdown Voltage	BVDSS	-30	—	—	V	$V_{GS} = 0V, I_D = -250 \mu A$
Zero Gate Voltage Drain Current	IDSS		—	-1.0	μΑ	$V_{DS} = -24V, V_{GS} = 0V$
Gate-Source Leakage	Igss	_	—	±100	nA	$V_{GS}=\pm 12V,V_{DS}=0V$
ON CHARACTERISTICS (Note 7)						
Gate Threshold Voltage	V _{GS(TH)}	-0.7	-1.1	-2.1	V	$V_{DS} = V_{GS}, I_D = -250 \mu A$
			60	95		$V_{GS} = -10V, I_D = -2.7A$
Static Drain-Source On-Resistance	R _{DS(ON)}	_	81	140	mΩ	$V_{GS} = -4.5V, I_D = -1.5A$
			104	300		$V_{GS} = -3.3V, I_D = -1A$
Diode Forward Voltage	V _{SD}	_	-0.8	-1.0	V	$V_{GS} = 0V, I_{S} = -1A$
DYNAMIC CHARACTERISTICS (Note 8)						
Input Capacitance	Ciss	_	324	—		
Output Capacitance	Coss	_	44	—	pF	$V_{DS} = -15V, V_{GS} = 0V,$ f = 1.2MHz
Reverse Transfer Capacitance	Crss	_	33	—		
Gate Resistance	Rg	_	7.2	—	Ω	$V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$
Total Gate Charge (V _{GS} = -4.5V)	Qg	_	4.4	—		$V_{DS} = -15V, V_{GS} = -4.5V, I_D = -3A$
Total Gate Charge (V _{GS} = -10V)	Qg	_	8.6	—	nC	
Gate-Source Charge	Qgs	_	0.3	—		V _{DS} = -15V, V _{GS} = -10V, I _D = -3A
Gate-Drain Charge	Qgd	_	1.5	—		
Turn-On Delay Time	tD(ON)	_	7.7	—		
Turn-On Rise Time	t _R		17.8	_		$V_{GS} = -10V, V_{DS} = -15V,$
Turn-Off Delay Time	tD(OFF)	_	17.8	—	ns	$R_G = 6\Omega, R_L = 15\Omega$
Turn-Off Fall Time	tF	_	29.5	—]	

 Short duration pulse test used to minimize self-heating effect.
Guaranteed by design. Not subject to production testing. Notes:



Typical Characteristics – N-Channel

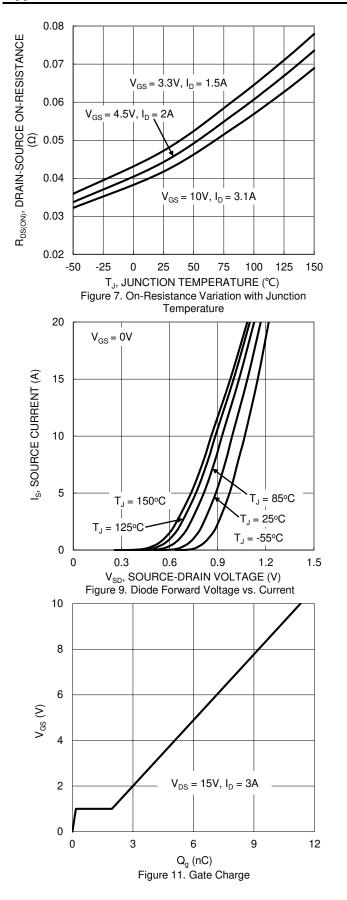


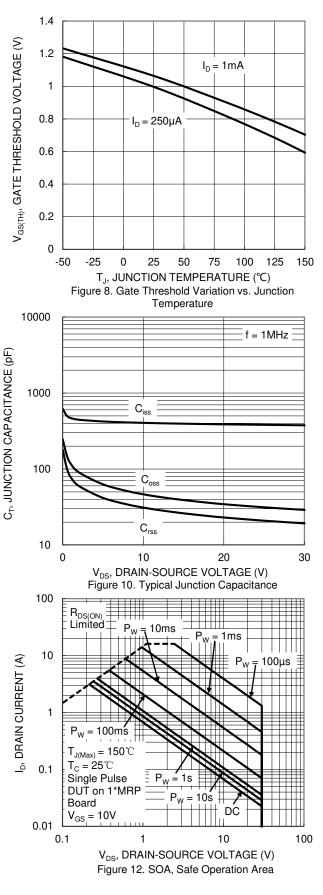


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Typical Characteristics – N-Channel (continued)

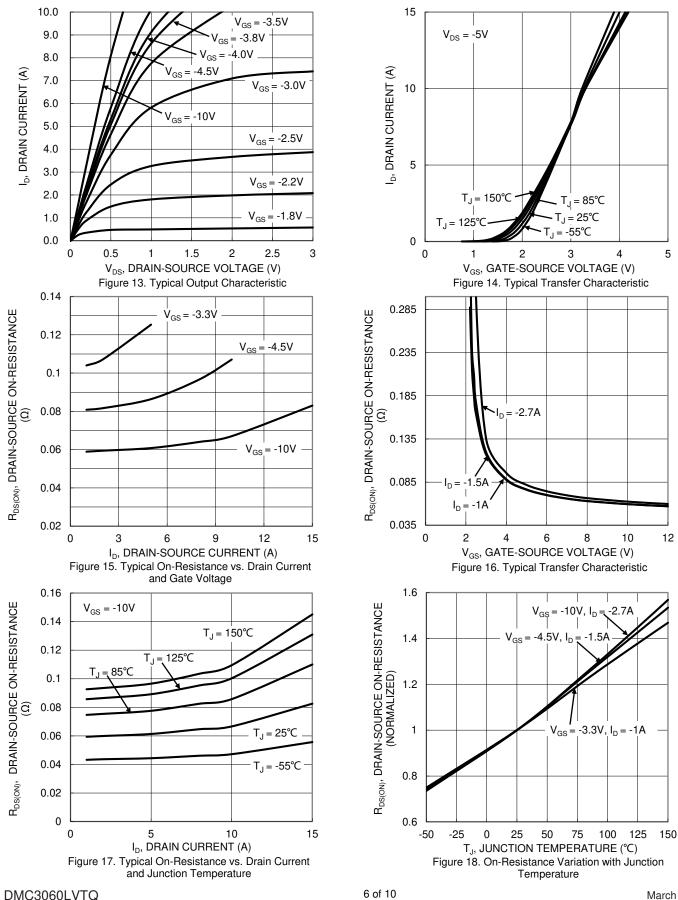




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Typical Characteristics – P-Channel

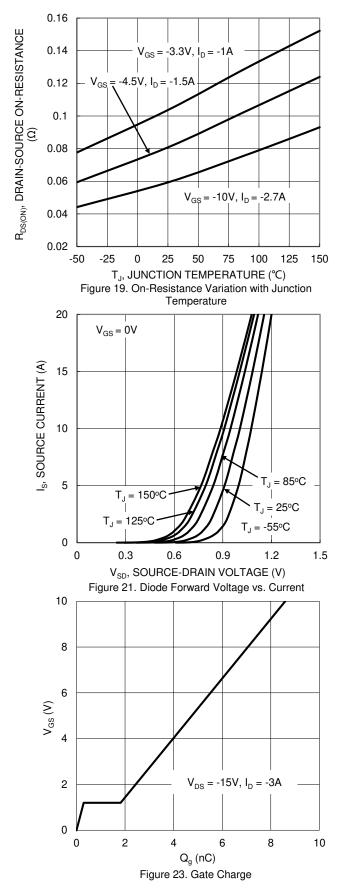


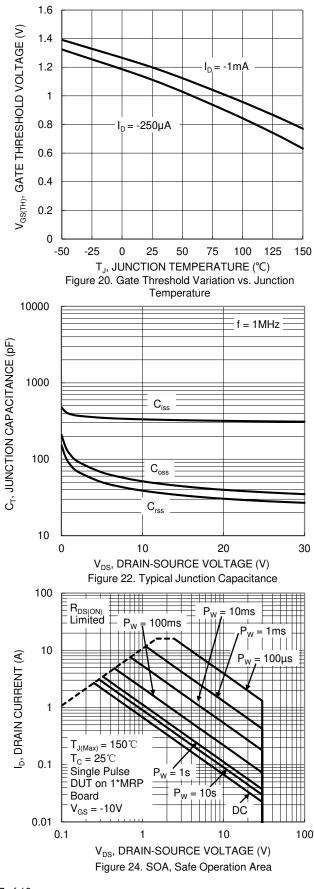
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Typical Characteristics – P-Channel (continued)

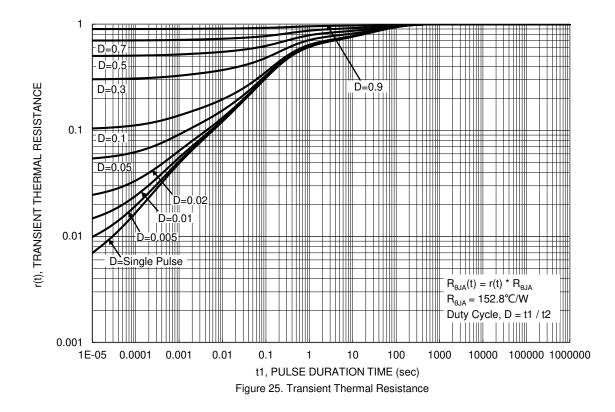




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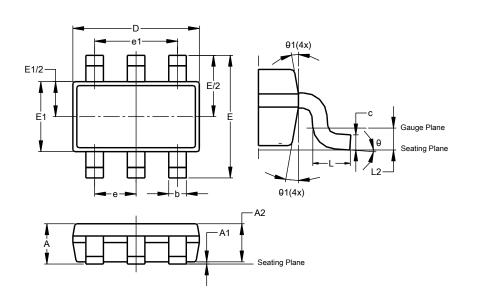






Package Outline Dimensions

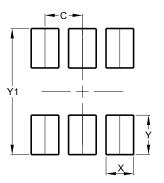
Please see http://www.diodes.com/package-outlines.html for the latest version.



	TS	OT26					
Dim	Min	Max	Тур				
Α	-	1.00	-				
A1	0.010	0.100	-				
A2	0.840	0.900	-				
D	2.800	3.000	2.900				
Е	2	.800 BS	С				
E1	1.500	1.700	1.600				
b	0.300 0.450		-				
С	0.120	0.200	-				
е	0	0.950 BSC					
e1	1	1.900 BSC					
1	0.30	0.50	-				
L2	0	.250 BS	С				
θ	0°	8°	4°				
θ1	4°	12°	-				
A	II Dimen	sions in	mm				

Suggested Pad Layout

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



TSOT26

TSOT26

Dimensions	Value (in mm)
С	0.950
Х	0.700
Y	1.000
Y1	3.199



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