



N-CHANNEL ENHANCEMENT MODE MOSFET

Product Summary

V _{(BR)DSS}	R _{DS(ON)}	Package	I _D T _C = 25°C
650V	3.0 Ω @V _{GS} = 10V	ITO220-3	4.0 A

Description

This new generation complementary MOSFET features low onresistance and fast switching, making it ideal for high efficiency power management applications.

Applications

- Motor control
- Backlighting
- DC-DC Converters
- · Power management functions

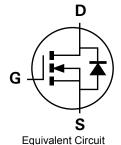
Features

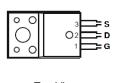
- Low Input Capacitance
- High BVDss rating for power application
- Low Input/Output Leakage
- Lead-Free Finish; RoHS Compliant (Notes 1 & 2)
- Halogen and Antimony Free. "Green" Device (Note 3)
- Qualified to AEC-Q101 Standards for High Reliability

Mechanical Data

- Case: ITO220-AB
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish-Matte Tin annealed over Copper Leadframe Solderable per MIL-STD-202, Method 208 (23)
- Terminal Connections: See Diagram Below
- Weight: 0.008 grams (approximate)







Top View
Pin Out Configuration

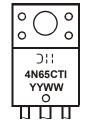
Ordering Information (Note 4)

Part Number	Case	Packaging
DMG4N65CTI	ITO220-AB	50 pieces/tube

Notes:

- 1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
- 2. See http://www.diodes.com 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.

Marking Information



4N65CTI = Product Type Marking Code YYWW = Date Code Marking YY = Last two digits of year (ex: 12 = 2012) WW = Week (01 - 53)



Maximum Ratings @TA = 25°C unless otherwise specified

Characteristic			Symbol	Value	Unit
Drain-Source Voltage			V_{DSS}	650	V
Gate-Source Voltage			V_{GSS}	±30	V
Continuous Drain Current (Note 5,6) V _{GS} = 10V	Steady State	T _C = +25°C T _C = +70°C	ID	4.0 3.0	А
Pulsed Drain Current (Note 7)		I _{DM}	6	Α	
Avalanche Current (Note 8) V _{DD} = 100V, V _{GS} = 10V, L = 60mH			I _{AS}	3.9	Α
Repetitive avalanche energy (Note 7)			E _{AS}	456	mJ

Thermal Characteristics

Characteristic	Symbol	Max	Unit
Power Dissipation (Note 5)	P_{D}	8.35	W
Thermal Resistance, Junction to Ambient @T _A = +25°C (Note 5)	$R_{\theta JA}$	12.36	°C/W
Thermal Resistance, Junction to Case @T _A = +25°C (Note 5)	Rejc	10.69	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

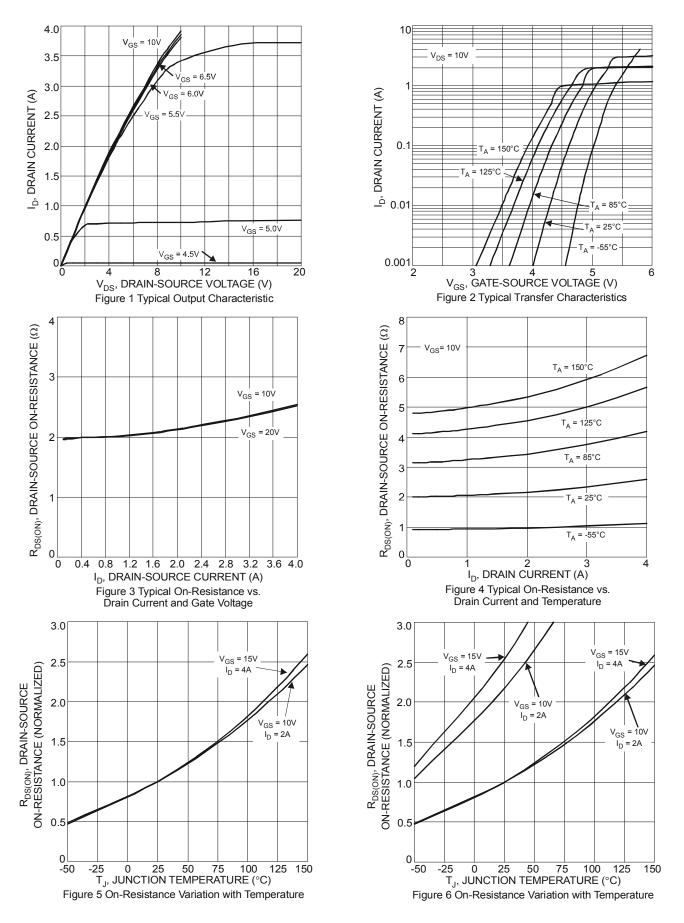
Electrical Characteristics @ TA = 25°C unless otherwise stated

Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition	
OFF CHARACTERISTICS (Note 9)							
Drain-Source Breakdown Voltage	BV _{DSS}	650	-	-	V	$V_{GS} = 0V, I_D = 250\mu A$	
Zero Gate Voltage Drain Current T _J = +25°C	I _{DSS}	-	-	1.0	μΑ	$V_{DS} = 650V, V_{GS} = 0V$	
Gate-Source Leakage	I _{GSS}	-	-	±100	nA	$V_{GS} = \pm 30V, V_{DS} = 0V$	
ON CHARACTERISTICS (Note 9)		-		-			
Gate Threshold Voltage	$V_{GS(th)}$	3	-	5	V	$V_{DS} = V_{GS}, I_{D} = 250 \mu A$	
Static Drain-Source On-Resistance	R _{DS} (ON)	-	2.1	3.0	Ω	$V_{GS} = 10V, I_D = 2A$	
Forward Transfer Admittance	Y _{fs}	-	3.7	-	S	$V_{DS} = 40V, I_{D} = 2A$	
Diode Forward Voltage	V_{SD}	-	0.7	1.0	V	$V_{GS} = 0V, I_{S} = 1A$	
DYNAMIC CHARACTERISTICS (Note 10)							
Input Capacitance	C _{iss}	-	900	-		V 05V V 0V	
Output Capacitance	Coss	-	50	-	pF	$V_{DS} = 25V, V_{GS} = 0V,$ f = 1.0MHz	
Reverse Transfer Capacitance	C _{rss}	-	1.1	-			
Gate Resistance	Rg	-	2.4	-	Ω	$V_{DS} = 0V$, $V_{GS} = 0V$, $f = 1MHz$	
Total Gate Charge V _{GS} = 10V	Qg	-	13.5	-		V _{GS} = 10V, V _{DS} = 520V, I _D = 4A	
Gate-Source Charge	Q _{gs}	-	2.7	-	nC		
Gate-Drain Charge	Q_{gd}	-	3.8	-			
Turn-On Delay Time	t _{D(on)}	-	15.1	-	ns		
Turn-On Rise Time	t _r	-	13.8	-	ns	$V_{GS} = 10V, V_{DS} = 325V,$ $R_{G} = 25\Omega, I_{D} = 4A$	
Turn-Off Delay Time	t _{D(off)}	-	40	-	ns		
Turn-Off Fall Time	t _f	-	16	-	ns		
Body Diode Reverse Recovery Time	t _{rr}	-	515	-	ns	dI/dt = 100A/μs, V _{DS} = 100V,	
Body Diode Reverse Recovery Charge	Q _{rr}	-	2330	-	nC		

Notes: 5. Device mounted on an infinite heatsink

- 6. Drain current limited by maximum junction temperature.
- Tall Current limited by Haximian Junician temperature.
 Repetitive rating, pulse width limited by junction temperature.
 I_{AS} and E_{AS} rating are based on low frequency and duty cycles to keep T_J = +25°C.
 Short duration pulse test used to minimize self-heating effect.
 Guaranteed by design. Not subject to production testing.







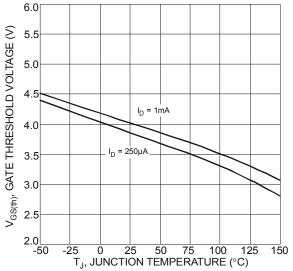


Figure 7 Gate Threshold Variation vs. Ambient Temperature

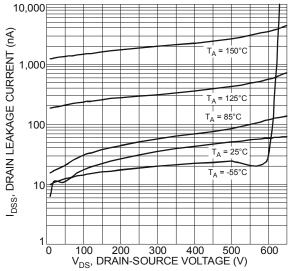
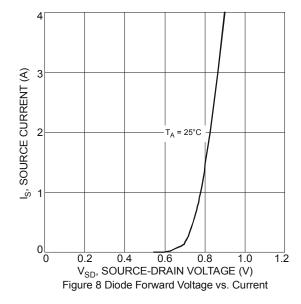


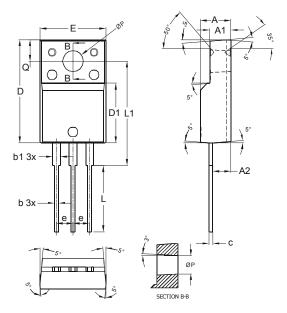
Figure 9 Typical Drain-Source Leakage Current vs. Voltage





Package Outline Dimensions

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



ITO-220AB						
Dim	Min	Тур	Max			
Α	4.50	4.70	4.90			
A1	3.04	3.24	3.44			
A2	2.56	2.76	2.96			
b	0.50	0.60	0.75			
b1	1.10	1.20	1.35			
С	0.50	0.60	0.70			
D	15.67	15.87	16.07			
D1	8.99	9.19	9.39			
е	2.54					
Е	9.91	10.11	10.31			
L	9.45	9.75	10.05			
L1	15.80	16.00	16.20			
Р	2.98	3.18	3.38			
Q	3.10	3.30	3.50			
All Dimensions in mm						



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