





DUAL N-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

Features

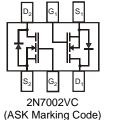
- Dual N-Channel MOSFET
- Low On-Resistance
- Low Gate Threshold Voltage
- Low Input Capacitance
- · Fast Switching Speed
- Low Input/Output Leakage
- Ultra-Small Surface Mount Package
- Lead Free By Design/RoHS Compliant (Note 3)
- "Green" Device (Note 4)
- Qualified to AEC-Q101 Standards for High Reliability

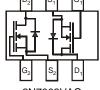


TOP VIEW

Mechanical Data

- Case: SOT-563
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminal Connections: See Diagram (Note 1)
- Terminals: Finish Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Marking Information: See Page 2
- Ordering Information: See Page 2
- Weight: 0.003 grams (approximate)





2N7002VAC (AYK Marking Code)

Maximum Ratings @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Units	
Drain-Source Voltage		V_{DSS}	60	V
Drain-Gate Voltage R _{GS} ≤ 1.0MΩ		V_{DGR}	60	V
Gate-Source Voltage (Note 2)	Continuous Pulsed	V_{GSS}	±20 ±40	V
Drain Current (Note 2)	Continuous	I _D	280	mA
Drain Current (Note 2)	Pulsed	I _{DM}	1.5	Α

SOT-563

Thermal Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Units
Total Power Dissipation	P _d	150	mW
Thermal Resistance, Junction to Ambient	$R_{ hetaJA}$	833	°C/W
Operating and Storage Temperature Range	T _{j,} T _{STG}	-55 to +150	°C

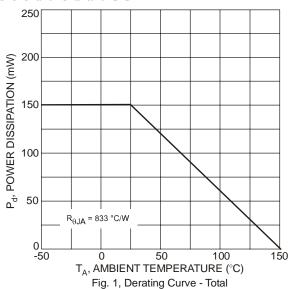
Electrical Characteristics @T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Тур	Max	Unit	Test Condition	
OFF CHARACTERISTICS (Note 5)				•			
Drain-Source Breakdown Voltage	BV _{DSS}	60	70	_	V	$V_{GS} = 0V$, $I_D = 10mA$	
Zero Gate Voltage Drain Current $@T_C = 25^{\circ}C$ $@T_C = 125^{\circ}C$	I _{DSS}			1.0 500	μA	V _{DS} = 60V, V _{GS} = 0V	
Gate-Body Leakage	I _{GSS}			±100	nA	$V_{GS} = \pm 20V$, $V_{DS} = 0V$	
ON CHARACTERISTIC (Note 5)							
Gate Threshold Voltage	V _{GS(th)}	1.0	I	2.5	V	$V_{DS} = V_{GS}, I_D = 250 \mu A$	
Static Drain-Source On-Resistance	R _{DS (ON)}			7.5 13.5	Ω	$V_{GS} = 5V$, $I_D = 0.05A$, $V_{GS} = 10V$, $I_D = 0.5A$, $T_j = 125$ °C	
On-State Drain Current	I _{D(ON)}	0.5	1.0		Α	V _{GS} = 10V, V _{DS} = 7.5V	
Forward Transconductance	g _{FS}	80	_		mS	$V_{DS} = 10V, I_D = 0.2A$	
DYNAMIC CHARACTERISTICS							
Input Capacitance	C _{iss}		I	50	рF		
Output Capacitance			_	25	рF	$V_{DS} = 25V$, $V_{GS} = 0V$, $f = 1.0MHz$	
Reverse Transfer Capacitance		_	_	5.0	рF		
SWITCHING CHARACTERISTICS				•			
Turn-On Delay Time	t _{D(ON)}	_		20	ns	$V_{DD} = 30V$, $I_D = 0.2A$, $R_L = 150\Omega$,	
Turn-Off Delay Time				20	ns	$V_{GEN} = 10V$, $R_{GEN} = 25\Omega$	

Notes:

- 1. Package is non-polarized. Parts may be on reel in orientation illustrated, 180° rotated, or mixed (both ways).
- 2. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch; pad layout as shown on Diodes Inc. suggested pad layout document AP02001, which can be found on our website at http://www.diodes.com/datasheets/ap02001.pdf.
- 3. No purposefully added Lead.
- 4. Diodes Inc.'s "Green" policy can be found on our website at http://www.diodes.com/products/lead_free/index.php.
- 5. Short duration pulse test used to minimize self-heating effect.





Ordering Information (Note 6)

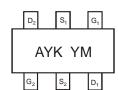
Part Number	Case	Packaging
2N7002VC-7	SOT-563	3000/Tape & Reel
2N7002VAC-7	SOT-563	3000/Tape & Reel

Notes: 6. For packaging details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



ASK = 2N7002VC Product Type Marking Code (See Note 1) YM = Date Code Marking Y = Year ex: R = 2004 M = Month ex: 9 = September

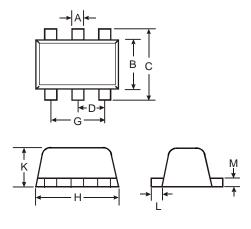


AYK = 2N7002VAC Product Type Marking Code (See Note 1) YM = Date Code Marking Y = Year ex: R = 2004 M = Month ex: 9 = September

Date Code Key

Year	2004	20	05	2006	2007	20	800	2009	2010	20	11	2012
Code	R		3	Т	U	,	V	W	X	,	Y	Z
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	0	N	D

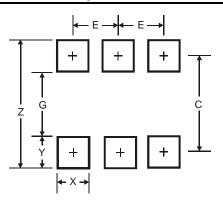
Package Outline Dimensions



	SOT-563						
Dim	Min	Max	Тур				
Α	0.15	0.30	0.20				
В	1.10	1.25	1.20				
С	1.55	1.70	1.60				
D	0.50						
G	0.90	1.10	1.00				
Н	1.50	1.70	1.60				
K	0.55	0.60	0.60				
L	0.10	0.30	0.20				
М	0.10	0.18	0.11				
All	All Dimensions in mm						



Suggested Pad Layout



Dimensions	Value (in mm)
Z	2.2
G	1.2
X	0.375
Y	0.5
С	1.7
Е	0.5

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