2N7002VC-7 Datasheet

DiGi Electronics Part Number	2N7002VC-7-DG
Manufacturer	Diodes Incorporated
Manufacturer Product Number	2N7002VC-7
Description	MOSFET 2N-CH 60V 0.28A SOT563
Detailed Description	Mosfet Array 60V 280mA 150mW Surface Mount SOT-563

https://www.DiGi-Electronics.com

Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
2N7002VC-7	Diodes Incorporated
Series:	Product Status:
-	Active
Technology:	Configuration:
MOSFET (Metal Oxide)	2 N-Channel (Dual)
FET Feature:	Drain to Source Voltage (Vdss):
-	60V
Current - Continuous Drain (Id) @ 25°C:	Rds On (Max) @ Id, Vgs:
280mA	7.5Ohm @ 50mA, 5V
Vgs(th) (Max) @ Id:	Gate Charge (Qg) (Max) @ Vgs:
2.5V @ 250µA	-
Input Capacitance (Ciss) (Max) @ Vds:	Power - Max:
50pF @ 25V	150mW
Operating Temperature:	Mounting Type:
-55°C ~ 150°C (TJ)	Surface Mount
Package / Case:	Supplier Device Package:
SOT-563, SOT-666	SOT-563
Base Product Number:	
2N7002	

Environmental & Export classification

RoHS Status:	Moisture Sensitivity Level (MSL):
ROHS3 Compliant	1 (Unlimited)
REACH Status:	ECCN:
REACH Unaffected	EAR99
HTSUS:	
8541.21.0095	

Lead-free Green

2N7002VC/VAC

DUAL N-CHANNEL ENHANCEMENT MODE MOSFET

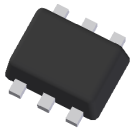
Features

- 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
- **Totally Lead-Free & Fully RoHS compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **For automotive applications requiring specific change control (i.e.: parts qualified to AEC-Q101, PPAP capable, and manufactured in IATF 16949 certified facilities), please refer to the related automotive grade (Q-suffix) part. A listing can be found at https://www.diodes.com/products/automotive/automotive-products/.**
- **This part is qualified to JEDEC standards (as references in AEC-Q101) for High Reliability.**
- **https://www.diodes.com/quality/product-definitions/**

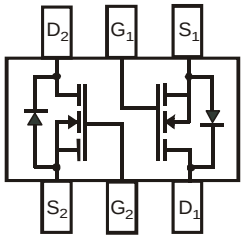
Mechanical Data

- Case: SOT563
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: See Diagram (Note 3)
- Terminals: Finish - Matte Tin annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Weight: 0.003 grams (approximate)

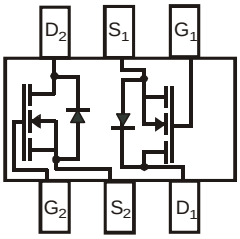
SOT563



Top View



2N7002VC
(ASK Marking Code)



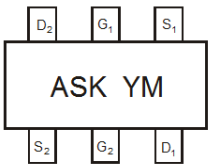
2N7002VAC
(AYK Marking Code)

Ordering Information (Note 4)

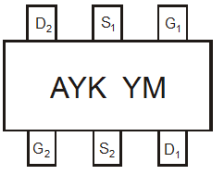
Part Number	Case	Packaging
2N7002VC-7	SOT563	3000/Tape & Reel
2N7002VAC-7	SOT563	3000/Tape & Reel

Notes:
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



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



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

Date Code Key

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Code	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E

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	Units
Drain-Source Voltage		V_{DSS}	60	V
Drain-Gate Voltage $R_{GS} \leq 1.0M\Omega$		V_{DGR}	60	V
Gate-Source Voltage (Note 5)	Continuous Pulsed	V_{GSS}	±20 ±40	V
Drain Current (Note 5)	Continuous	I_D	280	mA
Drain Current (Note 5)	Pulsed	I_{DM}	1.5	A

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	$R_{\theta JA}$	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	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS (Note 6)							
Drain-Source Breakdown Voltage		BV_{DSS}	60	70	—	V	V_{GS} = 0V, I_D = 10μA
Zero Gate Voltage Drain Current	@ T_C = +25°C @ T_C = +125°C	I_{DSS}	—	—	1.0 500	μA	V_{DS} = 60V, V_{GS} = 0V
Gate-Body Leakage		I_{GSS}	—	—	±100	nA	V_{GS} = ±20V, V_{DS} = 0V
ON CHARACTERISTIC (Note 6)							
Gate Threshold Voltage		$V_{GS(th)}$	1.0	—	2.5	V	V_{DS} = V_{GS}, I_D = 250μA
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	—	A	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}	—	—	50	pF	V_{DS} = 25V, V_{GS} = 0V, f = 1.0MHz
Output Capacitance		C_{oss}	—	—	25	pF	
Reverse Transfer Capacitance		C_{rss}	—	—	5.0	pF	
SWITCHING CHARACTERISTICS							
Turn-On Delay Time		$t_{D(ON)}$	—	—	20	ns	V_{DD} = 30V, I_D = 0.2A, R_L = 150Ω,
Turn-Off Delay Time		$t_{D(OFF)}$	—	—	20	ns	V_{GEN} = 10V, R_{GEN} = 25Ω

Notes: 5. 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.
6. Short duration pulse test used to minimize self-heating effect.

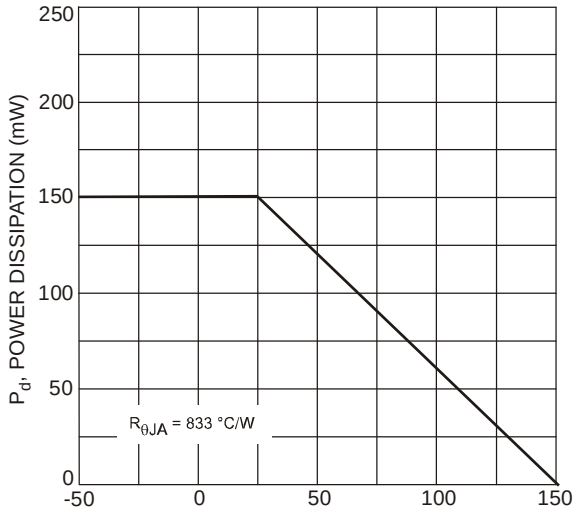
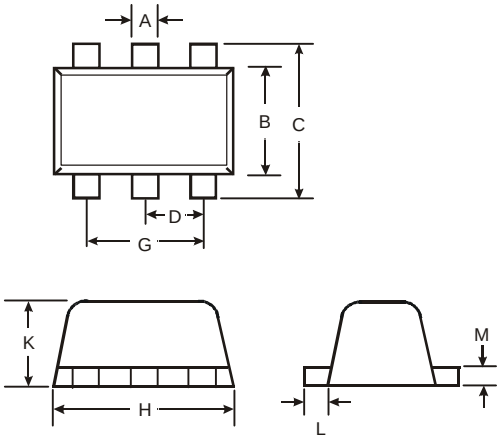


Fig. 1, Derating Curve - Total

Package Outline Dimensions

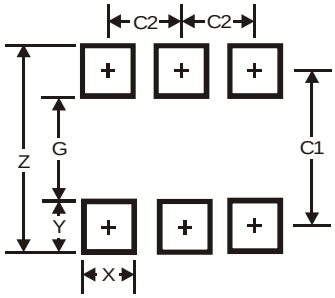
Please see http://www.diodes.com/package-outlines.html for the latest version.



SOT563			
Dim	**Min**	**Max**	**Typ**
A	0.15	0.30	0.20
B	1.10	1.25	1.20
C	1.55	1.70	1.60
D	-	-	0.50
G	0.90	1.10	1.00
H	1.50	1.70	1.60
K	0.55	0.60	0.60
L	0.10	0.30	0.20
M	0.10	0.18	0.11
All Dimensions in mm			

Suggested Pad Layout

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



Dimensions	Value (in mm)
Z	2.2
G	1.2
X	0.375
Y	0.5
C1	1.7
C2	0.5

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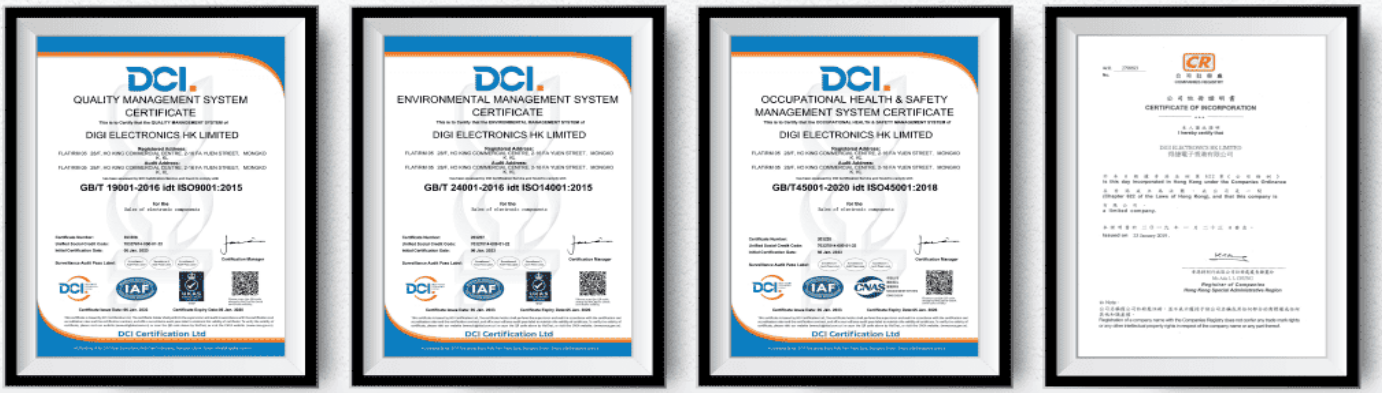

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