DG441LE and DG442LE Test condition change

For further information, please contact your regional Vishay office.

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Description of Change: DG441LE and DG442LE Test condition changed from 2.7V to 3V and specification limits are tighten.

Reason for Change: Increase of supply voltage to 3V during production ATE testing allows a more consistent “Drain-Source On-Resistance” measurement which improves manufacturability and is more reflective of real application conditions which use a 3.3V supply voltage or greater.

Expected Influence on Quality/Reliability/Performance: There will be no effect on performance, quality or reliability.

Part Numbers/Series/Families Affected: Please see materials list on the succeeding page.

Vishay Brand(S): Vishay Siliconix

Time Schedule:

Start Shipment Date: Tue Aug 13, 2024

Sample Availability: Samples are available now.

Product Identification: Date Code

Qualification Data: Available upon Request

This PCN is considered approved, without further notification, unless we receive specific customer concerns before Sat Jul 13, 2024 or as specified by contract.

Issued By: Lisette Saba, malinalisette.saba@vishay.com

DG441LEDJ-GE3	DG441LEDQ-GE3	DG441LEDQ-T1-GE3	DG441LEDY-GE3	DG441LEDY-T1-GE3
DG442LEDJ-GE3	DG442LEDQ-GE3	DG442LEDQ-T1-GE3	DG442LEDY-GE3	DG442LEDY-T1-GE3

DG441LE and DG442LE
Test Specification

Parameter Comparison

May 2024

Before

SPECIFICATIONS [a] (Single Supply 3 V)									
PARAMETER	SYMBOL	TEST CONDITIONS UNLESS OTHERWISE SPECIFIED V+ = 3 V, V- = 0 V V_L = 3 V, V_{IN} = 0.4 V, 2.0 V [f]	TEMP. [b]	TYP. [c]	A SUFFIX LIMITS -55 °C to +125 °C		D SUFFIX LIMITS -40 °C to +85 °C		UNIT
					MIN. [d]	MAX. [d]	MIN. [d]	MAX. [d]	
Analog Switch									
Analog Signal Range [e]	V_{ANALOG}		Full	-	0	3	0	3	V
Drain-Source On-Resistance	$R_{DS(on)}$	V+ = 2.7 V, V- = 0 V, I_S = 5 mA, V_D = 0.5, 2.2 V	Room	106	-	130	-	130	Ω
			Full	-	-	150	-	140	
Switch Off Leakage Current [g]	$I_{S(off)}$	V+ = 3.3, V- = 0 V, V_D = 1, 2 V, V_S = 2, 1 V	Room	-	-1	1	-1	1	nA
			Full	-	-15	15	-10	10	
	$I_{D(off)}$		Room	-	-1	1	-1	1	
			Full	-	-15	15	-10	10	
Channel On Leakage Current [g]	$I_{D(on)}$	V+ = 3.3 V, V- = 0 V, V_S = V_D = 1, 2 V	Room	-	-1	1	-1	1	
			Full	-	-15	15	-10	10	
Digital Control									
Input Current, V_{IN} Low	I_{IL}	V_{IN} under test = 0.4 V	Full	0.005	-1.5	1.5	-1	1	µA
Input Current, V_{IN} High	I_{IH}	V_{IN} under test = 2.4 V	Full	0.005	-1.5	1.5	-1	1	
Dynamic Characteristics									
Turn-On Time	t_{ON}	R_L = 300 Ω, C_L = 35 pF, V_S = 1.5 V, see figure 2	Room	57	-	85	-	85	ns
			Full	-	-	150	-	110	
Turn-Off Time	t_{OFF}		Room	25	-	60	-	60	
			Full	-	-	100	-	85	
Break-Before-Make Time Delay	t_D	DG413L only, V_S = 1.5 V, R_L = 300 Ω, C_L = 35 pF	Room	24	-	-	-	-	
Charge Injection [e]	Q	V_g = 0 V, R_g = 0 Ω, C_L = 10 nF	Room	2	-	-	-	-	pC
Off Isolation [e]	OIRR	R_L = 50 Ω, C_L = 5 pF, f = 1 MHz	Room	68	-	-	-	-	dB
Channel-to-Channel Crosstalk [e]	X_{TALK}		Room	107	-	-	-	-	
Source Off Capacitance [e]	$C_{S(off)}$	f = 1 MHz	Room	6	-	-	-	-	pF
Drain Off Capacitance [e]	$C_{D(off)}$		Room	7	-	-	-	-	
Channel On Capacitance [e]	$C_{D(on)}$		Room	15	-	-	-	-	

After

SPECIFICATIONS [a] (Single Supply 3 V)									
PARAMETER	SYMBOL	TEST CONDITIONS UNLESS OTHERWISE SPECIFIED V+ = 3 V, V- = 0 V V_L = 3 V, V_{IN} = 0.4 V, 2.0 V [f]	TEMP. [b]	TYP. [c]	A SUFFIX LIMITS -55 °C to +125 °C		D SUFFIX LIMITS -40 °C to +85 °C		UNIT
					MIN. [d]	MAX. [d]	MIN. [d]	MAX. [d]	
Analog Switch									
Analog signal range [e]	V_{ANALOG}		Full	-	0	3	0	3	V
Drain-source on-resistance	$R_{DS(on)}$	V+ = 3.0 V, V- = 0 V, I_S = 5 mA, V_D = 0.5, 2.2 V	Room	71	52	90	52	90	Ω
			Full	-	-	110	-	102	
Switch off leakage current [g]	$I_{S(off)}$	V+ = 3.3, V- = 0 V, V_D = 1, 2 V, V_S = 2, 1 V	Room	-	-1	1	-1	1	nA
			Full	-	-15	15	-10	10	
	$I_{D(off)}$		Room	-	-1	1	-1	1	
			Full	-	-15	15	-10	10	
Channel on leakage current [g]	$I_{D(on)}$	V+ = 3.3 V, V- = 0 V, V_S = V_D = 1, 2 V	Room	-	-1	1	-1	1	
			Full	-	-15	15	-10	10	
Digital Control									
Input current, V_{IN} low	I_{IL}	V_{IN} under test = 0.4 V	Full	0.005	-1.5	1.5	-1	1	µA
Input current, V_{IN} high	I_{IH}	V_{IN} under test = 2.4 V	Full	0.005	-1.5	1.5	-1	1	
Dynamic Characteristics									
Turn-on time	t_{ON}	R_L = 300 Ω, C_L = 35 pF, V_S = 1.5 V, see figure 2	Room	57	-	85	-	85	ns
			Full	-	-	150	-	110	
Turn-off time	t_{OFF}		Room	25	-	60	-	60	
			Full	-	-	100	-	85	
Break-before-make time delay	t_D	DG413L only, V_S = 1.5 V, R_L = 300 Ω, C_L = 35 pF	Room	24	-	-	-	-	
Charge injection [e]	Q	V_g = 0 V, R_g = 0 Ω, C_L = 10 nF	Room	2	-	-	-	-	pC
Off isolation [e]	OIRR	R_L = 50 Ω, C_L = 5 pF, f = 1 MHz	Room	68	-	-	-	-	dB
Channel-to-channel crosstalk [e]	X_{TALK}		Room	107	-	-	-	-	
Source off capacitance [e]	$C_{S(off)}$	f = 1 MHz	Room	6	-	-	-	-	pF
Drain off capacitance [e]	$C_{D(off)}$		Room	7	-	-	-	-	
Channel on capacitance [e]	$C_{D(on)}$		Room	15	-	-	-	-	