



Si4501ADY vs. Si4501DY

Description: Complementary MOSFET Half-Bridge (N- and P-Channel)
Package: SOIC-8
Pin Out: Identical

Part Number Replacements:

- Si4501ADY Replaces Si4501DY
- Si4501ADY—E3 (Lead Free version) Replaces Si4501DY
- Si4501ADY-T1 Replaces Si4501DY-T1
- Si4501ADY-T1—E3 (Lead Free version) Replaces Si4501DY-T1

Summary of Performance:

The Si4501ADY is the replacement for the original Si4501DY; both parts perform identically including limits to the parametric tables below.

ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Channel	Si4501ADY	Si4501DY	Unit	
Drain-Source Voltage	V _{DS}	N-Ch P-Ch	30 -8	30 -8	V	
Gate-Source Voltage	V _{GS}	N-Ch P-Ch	±20 ±8	±20 ±8		
Continuous Drain Current	T _A = 25 °C T _A = 70 °C	I _D	N-Ch P-Ch	8.8 -5.7	9.0 -6.2	A
			N-Ch P-Ch	7.0 -4.5	7.4 -5.0	
Pulsed Drain Current	I _{DM}	N-Ch P-Ch	30 -30	30 -20		
Continuous Source Current (MOSFET Diode Conduction)	I _S	N-Ch P-Ch	1.8 -1.8	1.7 -1.7		
Power Dissipation	T _A = 25 °C T _A = 70 °C	P _D		2.5 1.6	2.5 1.6	W
Operating Junction and Storage Temperature Range	T _J and T _{stg}		-55 to 150	-55 to 150	°C	
Maximum Junction-to-Ambient	R _{thJA}		50	50	°C/W	

SPECIFICATIONS (T_J = 25 °C UNLESS OTHERWISE NOTED)									
Parameter	Symbol	Channel	Si4501ADY			Si4501DY			Unit
			Min	Typ	Max	Min	Typ	Max	
Static									
Drain-Source Breakdown Voltage	V _{(BR)DSS}	N-Ch P-Ch	30 -8			30 -8			V
Gate-Threshold Voltage	V _{G(th)}	N-Ch P-Ch	0.8 -0.45		1.8 -1.0	0.8 -0.45			
Gate-Body Leakage	I _{GSS}				±100			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	N-Ch P-Ch			1 -1			1 -1	µA
On-State Drain Current	V _{GS} = 10 V V _{GS} = -4.5 V	I _{D(on)}	N-Ch	30		30			A
			P-Ch	-20		-20			
Drain-Source On-Resistance	V _{GS} = 10 V V _{GS} = -4.5 V	r _{Ds(on)}	N-Ch	0.015	0.018		0.015	0.018	Ω
	V _{GS} = 4.5 V V _{GS} = -2.5 V		P-Ch	0.030	0.042		0.034	0.042	
			N-Ch	0.022	0.027		0.022	0.027	
			P-Ch	0.048	0.060		0.048	0.060	
Forward Transconductance	g _{fs}	N-Ch P-Ch		18 12			20 14		S
Diode Forward Voltage	V _{SD}	N-Ch P-Ch		0.73 -0.75	-1.1		0.71 -0.70	1.1 -1.1	V

Specification Comparison



Vishay Siliconix

SPECIFICATIONS (T_J = 25 °C UNLESS OTHERWISE NOTED)									
Parameter	Symbol	Channel	Si4501ADY			Si4501DY			Unit
			Min	Typ	Max	Min	Typ	Max	
Dynamic									
Total Gate Charge	Qg	N-Ch P-Ch		11.5 13.5	20 20		4.5 15	20 25	nC
Gate-Source Charge	Qgs	N-Ch P-Ch		3 2.2			3.3 3.0		
Gate-Drain Charge	Qgd	N-Ch P-Ch		4 3			6.6 2.0		
Switching									
Turn-On Time	t _{d(on)}	N-Ch P-Ch		15 21	22 40		13 20	20 40	ns
	t _r	N-Ch P-Ch		8 45	15 70		9 50	18 100	
Turn-Off Time	t _{d(off)}	N-Ch P-Ch		35 60	50 100		35 110	50 220	
	t _f	N-Ch P-Ch		10 55	20 85		17 60	30 120	
Source-Drain Reverse Recovery Time	t _{rr}	N-Ch P-Ch		30 50	60 100		35 60	70 100	