



Si4501BDY vs. Si4501ADY

Description: 30 V N-Channel and 8 V P-Channel, (D-S) MOSFETs

Package: SO-8

Pin Out: Identical

Part Number Replacements: Si4501BDY-T1-GE3 replaces Si4501ADY-T1-E3
Si4501BDY-T1-GE3 replaces Si4501ADY-T1-GE3

ABSOLUTE MAXIMUM RATINGS ($T_A = 25\text{ }^\circ\text{C}$, unless otherwise noted)						
PARAMETER		SYMBOL		Si4501BDY	Si4501ADY	UNIT
Drain-Source Voltage		V_{DS}	N-CH	30	30	V
			P-CH	- 8	- 8	
Gate-Source Voltage		V_{GS}	N-CH	± 20	± 20	
			P-CH	± 8	± 8	
Continuous Drain Current	$T_A = 25\text{ }^\circ\text{C}$	I_D	N-CH	9	8.8	A
			P-CH	- 6.4	- 5.7	
	$T_A = 70\text{ }^\circ\text{C}$		N-CH	7.2	7	
			P-CH	- 5.1	- 4.5	
Pulsed Drain Current		I_{DM}	N-CH	40	30	
			P-CH	- 40	- 30	
Continuous Source Current (MOSFET Diode Conduction)		I_S	N-CH	2.2	1.8	
			P-CH	- 1.8	- 1.8	
Power Dissipation	$T_A = 25\text{ }^\circ\text{C}$	P_D	N-CH	2.5	2.5	W
			P-CH	2		
$T_A = 70\text{ }^\circ\text{C}$	N-CH		1.6	1.6		
	P-CH		1.28			
Operating Junction and Storage Temperature Range		T_J and T_{stg}		- 55 to 150	- 55 to 150	$^\circ\text{C}$
Maximum Junction-to-Ambient		R_{thJA}	N-CH	50	50	$^\circ\text{C/W}$
			P-CH	62.5		

SPECIFICATIONS ($T_J = 25\text{ }^\circ\text{C}$, unless otherwise noted)										
PARAMETER	SYMBOL		Si4501BDY			Si4501ADY			UNIT	
			MIN.	TYP.	MAX.	MIN.	TYP.	MAX.		
Static										
Gate-Threshold Voltage	$V_{GS(th)}$	N-CH	0.8		1.8	0.8		1.8	V	
		P-CH	- 0.45		- 0.9	- 0.45		- 1		
Gate-Body Leakage	I_{GSS}	N-CH			± 100			± 100	nA	
		P-CH			± 100			± 100		
Zero Gate Voltage Drain Current	I_{DSS}	N-CH			1			1	μA	
		P-CH			- 1			- 1		
On-State Drain Current	$V_{GS} = 10\text{ V}$	$I_{D(on)}$	N-CH	20			30		A	
	$V_{GS} = - 4.5\text{ V}$		P-CH	- 20			- 20			
Drain-Source On-Resistance	$V_{GS} = 10\text{ V}$	$R_{DS(on)}$	N-CH		0.0135	0.017		0.015	0.018	Ω
	$V_{GS} = - 4.5\text{ V}$		P-CH		0.021	0.027		0.030	0.042	
	$V_{GS} = 4.5\text{ V}$		N-CH		0.016	0.020		0.022	0.027	
	$V_{GS} = - 2.5\text{ V}$		P-CH		0.029	0.037		0.048	0.060	
Forward Transconductance	g_{fs}	N-CH		29			18		S	
		P-CH		24			12			
Diode Forward Voltage	V_{SD}	N-CH		0.72	1.1		0.73	1.1	V	
		P-CH		- 0.71	- 1.1		- 0.75	- 1.1		

Specification Comparison

Vishay Siliconix



SPECIFICATIONS ($T_J = 25\text{ }^\circ\text{C}$, unless otherwise noted)									
PARAMETER	SYMBOL		Si4501BDY			Si4501ADY			UNIT
			MIN.	TYP.	MAX.	MIN.	TYP.	MAX.	
Dynamic									
Total Gate Charge	Q_g	N-CH		6	9		9.8	15	nC
		P-CH		7.8	12		8.7	20	
Gate-Source Charge	Q_{gs}	N-CH		1.3			21		
		P-CH		1.3			1.9		
Gate-Drain Charge	Q_{gd}	N-CH		0.9			1.6		
		P-CH		1.8			1.3		
Gate Resistance	R_g	N-CH	0.6	3.1	6.2		NS	NS	Ω
		P-CH	2	10	20		NS	NS	

NS denotes not specified in original specification.

Specification comparisons are supplied as a courtesy to compare two devices and do not constitute a commercial product datasheet or any guarantee of identical performance. Designers should refer to the appropriate datasheets of the same number for guaranteed specification limits.