



Si4420BDY vs. Si4420DY

Description: N-Channel, 30-V (D-S) MOSFET
Package: SO-8
Pin Out: Identical

Part Number Replacements:

Si4420BDY-T1-E3 Replaces Si4420DY-T1-E3
 Si4420BDY-T1-E3 Replaces Si4420DY-T1

Summary of Performance:

The Si4420BDY is the replacement to the original Si4420DY; both parts perform identically, including limits to the parametric tables below.

ABSOLUTE MAXIMUM RATINGS (T _A = 25°C UNLESS OTHERWISE NOTED)					
Parameter		Symbol	Si4420BDY	Si4420DY	Unit
Drain-Source Voltage		V _{DS}	30	30	V
Gate-Source Voltage		V _{GS}	±20	±20	
Continuous Drain Current	T _A = 25°C	I _D	13.5	13.5	A
	T _A = 70°C		10.8	10.8	
Pulsed Drain Current		I _{DM}	50	50	
Continuous Source Current (MOSFET Diode Conduction)		I _S	2.3	2.7	
Power Dissipation	T _A = 25°C	P _D	2.5	3.0	W
	T _A = 70°C		1.6	1.9	
Operating Junction & Storage Temperature Range		T _J & T _{stg}	-55 to 150	-55 to 150	°C
Maximum Junction-to-Ambient		R _{thJA}	50	42	°C/W

SPECIFICATIONS (T _J = 25°C UNLESS OTHERWISE NOTED)									
Parameter	Symbol	Si4420BDY			Si4420DY			Unit	
		Min	Typ	Max	Min	Typ	Max		
Static									
Gate-Threshold Voltage	V _{GS(th)}	1.0		3.0	1.0	2.0	3.0	V	
Gate-Body Leakage	I _{GSS}			±100			±100	nA	
Zero Gate Voltage Drain Current	I _{BSS}			1			1	µA	
On-State Drain Current	V _{GS} = 10 V	I _{D(on)}	30		30			A	
Drain-Source On-Resistance	V _{GS} = 10 V	r _{DS(on)}		0.007	0.0085		0.0075	0.009	Ω
	V _{GS} = 4.5 V			0.009	0.011		0.010	0.013	
Forward Transconductance		g _{fs}		50			50	S	
Diode Forward Voltage		V _{SD}		0.75	1.1		NS	1.1	V
Dynamic									
Total Charge	Q _g		16	25		29	45	nC	
Total Gate Charge	Q _{gt}		31	50		58	90		
Gate-Source Charge	Q _{gs}		6.6			12			
Gate-Drain Charge	Q _{gd}		4.0			9.5			
Gate Resistance	R _g	0.5	1.0	1.5	0.5	2.1	4.6	Ω	
Switching									
Turn-On Time*	t _{d(on)}		15	25		22	35	ns	
	t _r		11	18		13	20		
Turn-Off Time*	t _{d(off)}		40	60		82	125		
	t _f		12	20		30	45		
Source-Drain Reverse Recovery Time	t _{rr}		30	50		50	75		

NS denotes parameter not specified