



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 _{DSS}			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