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

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 and Storage Temperature Range		T_j and 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.

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.