



Si4814BDY vs. Si4814DY

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

Part Number Replacements:

Si4814BDY-T1-E3 Replaces Si4814DY-T1-E3
 Si4814BDY-T1-E3 Replaces Si4814DY-T1

Summary of Performance:

The Si4814BDY is the replacement to the original Si4814DY; both parts perform identically, including limits to the parametric tables below.

ABSOLUTE MAXIMUM RATINGS (T _A = 25°C UNLESS OTHERWISE NOTED)							
Parameter	Symbol	Si4814BDY		Si4814DY		Unit	
		Ch-1	Ch-2	Ch-1	Ch-2		
Drain-Source Voltage	V _{DS}	30		30		V	
Gate-Source Voltage	V _{GS}	±20		±20			
Continuous Drain Current	I _D	T _A = 25°C	7.5	7.8	7.0	7.8	A
		T _A = 70°C	6	6.3	5.6	6	
Pulsed Drain Current	I _{DM}	40	40	40	40		
Continuous Source Current (MOSFET Diode Conduction)	I _S	1.7	1.8	1.7	1.8		
Power Dissipation	P _D	T _A = 25°C	1.9	2.0	1.9	2.0	W
		T _A = 70°C	1.2	1.3	1.2	1.3	
Operating Junction & Storage Temperature Range	T _J & T _{stg}	-55 to 150		-55 to 150		°C	
Maximum Junction-to-Ambient - MOSFET	R _{thJA}	65	60	65	60	°C/W	

MOSFET SPECIFICATIONS (T _J = 25°C UNLESS OTHERWISE NOTED)										
Parameter	Symbol	Si4814BDY				Si4814DY			Unit	
		Min	Typ	Max	Min	Typ	Max			
Static										
Gate-Threshold Voltage	V _{GS(th)}	Ch-1	1.5		3.0	0.8		NS	V	
		Ch-2	1.5		2.7	0.8		NS		
Gate-Body Leakage	I _{GSS}	Ch-1			±100			±100	nA	
		Ch-2			±100			±100		
Zero Gate Voltage Drain Current	I _{DSS}	Ch-1			1			1	µA	
		Ch-2			100			100		
On-State Drain Current	V _{GS} = 10 V	I _{D(on)}	Ch-1	20			20		A	
			Ch-2	20			20			
Drain-Source On-Resistance	V _{GS} = 10 V	r _{DS(on)}	Ch-1		0.0145	0.018		0.0175	0.021	Ω
			Ch-2		0.015	0.018		0.0165	0.020	
	V _{GS} = 4.5 V	Ch-1		0.019	0.023		0.027	0.0325		
		Ch-2		0.018	0.022		0.022	0.0265		
Forward Transconductance	g _{fs}	Ch-1		30			17		S	
		Ch-2		35			20			
Diode Forward Voltage	V _{SD}	Ch-1		0.75	1.1		0.7	1.1	V	
		Ch-2		0.47	0.5		0.47	0.5		



MOSFET SPECIFICATIONS (T _J = 25°C UNLESS OTHERWISE NOTED)									
Parameter	Symbol	Si4814BDY			Si4814DY			Unit	
		Min	Typ	Max	Min	Typ	Max		
Dynamic									
Total Charge	Q _g	Ch-1		6.6	10		6.5	10	nC
		Ch-2		8.9	14		9.7	15	
Gate-Source Charge	Q _{gs}	Ch-1		2.9			1.5		
		Ch-2		3.4			2.6		
Gate-Drain Charge	Q _{gd}	Ch-1		2.3			2.7		
		Ch-2		2.4			3.8		
Gate Resistance	R _g	Ch-1	0.5	1.9	2.9	0.5	1.6	2.6	Ω
		Ch-2	0.5	2.3	3.5	0.5	1.8	3.1	
Switching									
Turn-On Time	t _{d(on)}	Ch-1		8	15		12	20	ns
		Ch-2		9	15		13	20	
	t _r	Ch-1		11	18		13	20	
		Ch-2		13	20		13	20	
Turn-Off Time	t _{d(off)}	Ch-1		21	32		22	35	
		Ch-2		27	40		29	45	
	t _f	Ch-1		6	10		8	15	
		Ch-2		9	15		12	20	
Source-Drain Reverse Recovery Time	t _{rr}	Ch-1		28	40		50	80	
		Ch-2		24	35		46	80	

SCHOTTKY SPECIFICATIONS (T _J = 25°C UNLESS OTHERWISE NOTED)									
Parameter	Symbol	Si4814BDY			Si4814DY			Unit	
		Min	Typ	Max	Min	Typ	Max		
Static									
Forward Voltage Drop	V _F	T _J = 25°C		0.47	0.50		0.47	0.50	nC
		T _J = 125°C		0.36	0.42		0.36	0.42	
Maximum Reverse Leakage Current	I _{rm}	T _J = 25°C		0.004	0.100		0.004	0.100	mA
		T _J = 100°C		0.7	10		0.7	10	
		T _J = 125°C		3.0	20		3.0	20	
Junction Capacitance	C _T		50			50		pF	