



## Si4812BDY vs. Si4812DY

**Description:** N-Channel, 30 V (D-S) MOSFET with Schottky Diode

**Package:** SO-8

**Pin Out:** Identical

**Part Number Replacements:**

Si4812BDY-T1-E3 Replaces Si4812DY-T1-E3

Si4812BDY-T1-E3 Replaces Si4812DY-T1

<b>ABSOLUTE MAXIMUM RATINGS</b> $T_A = 25\text{ }^\circ\text{C}$ , unless otherwise noted				
Parameter	Symbol	Si4812BDY	Si4812DY	Unit
Drain-Source Voltage	$V_{DS}$	30	30	V
Reverse Voltage (Schottky)		30	30	
Gate-Source Voltage	$V_{GS}$	$\pm 20$	$\pm 20$	
Continuous Drain Current	$I_D$	$T_A = 25\text{ }^\circ\text{C}$	9.5	9
		$T_A = 70\text{ }^\circ\text{C}$	7.7	7.5
Pulsed Drain Current	$I_{DM}$	50	50	A
Continuous Source Current (MOSFET Diode Conduction)	$I_S$	2.1	2.1	
Average Forward Current (Schottky)	$I_F$	1.4	1.4	
Pulsed Forward Current (Schottky)	$I_{FM}$	30	30	
Maximum Power Dissipation (MOSFET)	$P_D$	$T_A = 25\text{ }^\circ\text{C}$	2.5	3.5
		$T_A = 70\text{ }^\circ\text{C}$	1.6	2.6
Maximum Power Dissipation (Schottky)	$P_D$	$T_A = 25\text{ }^\circ\text{C}$	2.0	3.0
		$T_A = 70\text{ }^\circ\text{C}$	1.3	1.3
Operating Junction and Storage Temperature Range	$T_J$ and $T_{stg}$	- 55 to 150	- 55 to 150	$^\circ\text{C}$
Maximum Junction-to-Ambient	MOSFET	50	50	$^\circ\text{C/W}$
	Schottky	60	60	

<b>SPECIFICATIONS</b> $T_J = 25\text{ }^\circ\text{C}$ , unless otherwise noted								
Parameter	Symbol	Si4812BDY			Si4812DY			Unit
		Min	Typ	Max	Min	Typ	Max	
<b>Static</b>								
Gate-Threshold Voltage	$V_{GS(th)}$	1.0		NS	1		3	V
Gate-Body Leakage	$I_{GSS}$			$\pm 100$			$\pm 100$	nA
Zero Gate Voltage Drain Current (MOSFET + Schottky)	$I_{DSS}$			0.100		0.004	0.100	mA
On-State Drain Current	$V_{GS} = 10\text{ V}$	$I_{D(on)}$	20		20			A
Drain-Source On-Resistance	$V_{GS} = 10\text{ V}$	$r_{DS(on)}$	0.013	0.016		0.012	0.018	$\Omega$
	$V_{GS} = 4.5\text{ V}$		0.0165	0.021		0.019	0.028	
Forward Transconductance		$g_{fs}$	45			23		S
Schottky Diode Forward Voltage		$V_{SD}$	0.45	0.5		0.45	0.50	V
<b>Dynamic</b>								
Total Charge		$Q_g$		8.5	13		13	24
Gate-Source Charge		$Q_{gs}$		3			4	nC
Gate-Drain Charge		$Q_{gd}$		2.6			5.7	
Gate Resistance		$R_g$	0.3	0.7	1.1	0.2		2.4
<b>Switching</b>								
Turn-On Time*		$t_{d(on)}$		15	25		16	25
		$t_r$		13	20		10	20
Turn-Off Time*		$t_{d(off)}$		20	30		35	50
		$t_f$		8	15		13	20
Source-Drain Reverse Recovery Time		$t_{rr}$		22	35		35	70

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.