Si4894BDY vs. Si4894DY

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

Part Number Replacements:
Si4894BDY-T1 Replaces Si4894DY-T1
Si4894BDY-T1-E3 (Lead (Pb)-free version) Replaces Si4894DY-T1-E3

ABSOLUTE MAXIMUM RATINGS T_A = 25 °C, unless otherwise noted					
Parameter		**Symbol**	**Si4894BDY**	**Si4894DY**	**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	12	12.5	A
	T_A = 70 °C		9.5	10	
Pulsed Drain Current		I_{DM}	40	20	
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**	**Si4894BDY**			**Si4894DY**			**Unit**
			Min	**Typ**	**Max**	**Min**	**Typ**	**Max**	
Static									
Gate-Threshold Voltage		$V_{GS(th)}$	1.0		3.0	0.8			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	$r_{DS(on)}$		0.009	0.011		0.010	0.012	Ω
	V_{GS} = 4.5 V			0.013	0.018		0.015	0.018	
Forward Transconductance		g_{fs}		32			30		S
Diode Forward Voltage		V_{SD}		0.76	1.1		0.7	1.1	V
Dynamic									
Total Gate Charge	V_{GS} = 10 V	Q_g		25.4	38		20	30	nC
	V_{GS} = 5 V			13.2	20		11.5	17	
Gate-Source Charge		Q_{gs}		5.3			3.0		
Gate-Drain Charge		Q_{gd}		4.3			4.5		
Gate Resistance		R_g	0.9	1.8	2.7	1		2.4	Ω
Switching									
Turn-On Time		$t_{d(on)}$		13	20		10	20	ns
		t_r		10	15		5	10	
Turn-Off Time		$t_{d(off)}$		33	50		30	60	
		t_f		10	15		10	20	
Source-Drain Reverse Recovery Time		t_{rr}		25	40		30	60	

NS denotes parameter not specified in original data sheet.

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.