Si7904BDN vs. Si7904DN

Description: **Dual N-Channel, 20 V (D-S) MOSFET**
Package: **PowerPAK® 1212**
Pin Out: **Identical**

Part Number Replacements:
Si7904BDN-T1-E3 Replaces Si7904DN-T1-E3
Si7904BDN-T1 Replaces Si7904DN-T1

ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C, unless otherwise noted)

Parameter		Symbol	Si7904BDN	Si7904DN	Unit
Drain-Source Voltage		V_{DS}	20	20	V
Gate-Source Voltage		V_{GS}	± 8	± 8	
Continuous Drain Current	T_A = 25 °C	I_D	6	7.7	A
	T_A = 85 °C		5.1	5.5	
Pulsed Drain Current		I_{DM}	20	20	
Continuous Source Current (MOSFET Diode Conduction)		I_S	2.1	2.3	
Power Dissipation	T_A = 25 °C	P_D	2.5	2.8	W
	T_A = 85 °C		1.3	1.5	
Operating Junction & Storage Temperature Range		T_j & T_{stg}	- 55 to 150	- 55 to 150	°C
Maximum Junction-to-Ambient		R_{thJA}	50	44	°C/W

SPECIFICATIONS (T_J = 25 °C, unless otherwise noted)

Parameter		Symbol	Si7904BDN			Si7904DN			Unit
			Min	Typ	Max	Min	Typ	Max	
Static									
Gate-Threshold Voltage		$V_{GS(th)}$	0.45		1	0.45		1	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} = 4.5 V	$I_{D(on)}$	20			20			A
Drain-Source On-Resistance	V_{GS} = 4.5 V	$r_{DS(on)}$		0.025	0.030		0.025	0.030	Ω
	V_{GS} = 2.5 V			0.030	0.036		0.030	0.036	
	V_{GS} = 1.8 V			0.036	0.045		0.037	0.045	
Forward Transconductance		g_{fs}		26			23		S
Diode Forward Voltage		V_{SD}		0.8	1.2		0.70	1.2	V
Dynamic									
Total Charge		Q_g		9	13.5		10.2	15	nC
Gate-Source Charge		Q_{gs}		1.4			1.3		
Gate-Drain Charge		Q_{gd}		1.4			2.4		
Gate Resistance		R_g		3.2			NS		Ω
Switching									
Turn-On Time*		$t_{d(on)}$		7	15		15	23	ns
		t_r		60	90		50	75	
Turn-Off Time*		$t_{d(off)}$		25	40		60	90	
		t_f		6	10		45	68	
Source-Drain Reverse Recovery Time		t_{rr}		20	40		40	80	

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.