Si7405BDN vs. Si7405DN

Description: **P-Channel, 12-V (D-S) MOSFET**
Package: **PowerPAK® 1212-8**
Pin Out: **Identical**

Part Number Replacements: Si7405BDN-T1-E3 or Si7405BDN-T1-GE3 replaces Si7405DN-T1-E3
Si7405BDN-T1-E3 or Si7405BDN-T1-GE3 replaces Si7405DN-T1

ABSOLUTE MAXIMUM RATINGS T_A = 25 °C, unless otherwise noted					
PARAMETER		**SYMBOL**	**Si7405BDN**	**Si7405DN**	**UNIT**
Drain-Source Voltage		V_{DS}	- 12	- 12	V
Gate-Source Voltage		V_{GS}	± 8	± 8	
Continuous Drain Current	T_A = 25 °C	I_D	- 13.5	- 13	A
	T_A = 70 °C[a]		- 11	- 9.4	
Pulsed Drain Current		I_{DM}	- 40	- 30	
Continuous Source Current (MOSFET Diode Conduction)		I_S	- 3	- 3.2	
Power Dissipation	T_A = 25 °C	P_D	3.6	3.8	W
	T_A = 70 °C[a]		2.3	2.0	
Operating Junction and Storage Temperature Range		T_J and T_{stg}	- 55 to 150	- 55 to 150	°C
Maximum Junction-to-Ambient[b]		R_{thJA}	35	33	°C/W

Notes
a. T_A = 70 °C for Si7405BDN; T_A = 85 °C for Si7405DN
b. t < 5 s for Si7405BDN; t < 10 s for Si7405DN

SPECIFICATIONS T_J = 25 °C, unless otherwise noted									
			Si7405BDN			**Si7405DN**			
PARAMETER		**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Static									
Gate-Threshold Voltage		$V_{GS(th)}$	- 0.4		- 1.0	- 0.45		- 1.0	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} = - 4.5 V	$I_{D(on)}$	- 20			- 30			A
Drain-Source On-Resistance	V_{GS} = - 4.5 V	$R_{DS(on)}$		0.009	0.012		0.013	0.016	Ω
	V_{GS} = - 2.5 V			0.012	0.016		0.018	0.022	
	V_{GS} = - 1.8 V			0.016	0.022		0.022	0.028	
Forward Transconductance		g_{fs}		55			35		S
Diode Forward Voltage		V_{SD}		- 0.72	- 1.2		- 0.7	- 1.2	V
Dynamic									
Total Gate Charge		Q_g		46	70		35	50	nC
Gate-Source Charge		Q_{gs}		4.5			6.6		
Gate-Drain Charge		Q_{gd}		14			7.7		
Gate Resistance		R_g		3			NS		Ω

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.