Si7866ADP vs. Si7866DP

Description: **N-Channel, 20 V (D-S) MOSFET**
Package: **PowerPAK® SO-8**
Pin Out: **Identical**

Part Number Replacements:
Si7866ADP-T1-E3 Replaces Si7866DP-T1-E3
Si7866ADP-T1-E3 Replaces Si7866DP-T1

ABSOLUTE MAXIMUM RATINGS T_A = 25 °C, unless otherwise noted					
Parameter		**Symbol**	**Si7866ADP**	**Si7866DP**	**Unit**
Drain-Source Voltage		V_{DS}	20	20	V
Gate-Source Voltage		V_{GS}	± 20	± 20	
Continuous Drain Current	T_A = 25 °C	I_D	35	29	A
	T_A = 70 °C		28	25	
Pulsed Drain Current		I_{DM}	70	60	
Continuous Source Current (MOSFET Diode Conduction)		I_S	4.9	4.5	
Power Dissipation	T_A = 25 °C	P_D	5.4	5.4	W
	T_A = 70 °C		3.4	3.4	
Operating Junction and Storage Temperature Range		T_j and T_{stg}	- 55 to 150	- 55 to 150	°C
Maximum Junction-to-Ambient		R_{thJA}	23	23	°C/W

SPECIFICATIONS T_J = 25 °C, unless otherwise noted									
Parameter		**Symbol**	**Si7866ADP**			**Si7866DP**			**Unit**
			Min	**Typ**	**Max**	**Min**	**Typ**	**Max**	
Static									
Gate-Threshold Voltage		$V_{GS(th)}$	0.8		2.2	0.8		2.1	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} = 10 V	$I_{D(on)}$	30			30			A
Drain-Source On-Resistance	V_{GS} = 10 V	$r_{DS(on)}$		0.0019	0.0024		0.0020	0.0025	Ω
	V_{GS} = 4.5 V			0.0023	0.0030		0.0026	0.00375	
Forward Transconductance		g_{fs}		110			95		S
Diode Forward Voltage		V_{SD}		0.65	1.1		0.68	1.1	V
Dynamic									
Total Gate Charge		Q_g		39	60		40	60	nC
Gate-Source Charge		Q_{gs}		12.5			15		
Gate-Drain Charge		Q_{gd}		10.3			11		
Gate Resistance		R_g	0.5	1.1	1.7	0.5	1.2	1.8	Ω
Switching									
Turn-On Time[a]		$t_{d(on)}$		34	50		70	100	ns
		t_r		120	180		60	90	
Turn-Off Time[a]		$t_{d(off)}$		42	65		105	160	
		t_f		12	20		55	85	
Source-Drain Reverse Recovery Time		t_{rr}		51	75		65	100	

Notes:
a. Datasheet test conditions differ; R_L = 1 Ω, I_D = 10 A, R_g = 1 Ω on the Si7866ADP and R_L = 10 Ω, I_D = 1 A, R_g = 6 Ω on the Si7866DP.

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.