Si7868ADP vs. Si7868DP

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

Part Number Replacements:

Si7868ADP-T1-E3 Replaces Si7868DP-T1-E3
Si7868ADP-T1-E3 Replaces Si7868DP-T1

Summary of Performance:

The Si7868ADP is the replacement to the original Si7868DP; both parts perform identically, including limits to the parametric tables below.

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C UNLESS OTHERWISE NOTED)					
Parameter		**Symbol**	**Si7868ADP**	**Si7868DP**	**Unit**
Drain-Source Voltage		V_{DS}	20	20	V
Gate-Source Voltage		V_{GS}	±16	±16	
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	
Avalanche Current	L = 0.1 mH	I_{AS}	30	50	
Power Dissipation	T_A = 25°C	P_D	5.4	5.4	W
	T_A = 70°C		3.4	3.4	
Operating Junction & Storage Temperature Range		T_j & 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**	**Si7868ADP**			**Si7868DP**			**Unit**
			Min	**Typ**	**Max**	**Min**	**Typ**	**Max**	
Static									
Gate-Threshold Voltage		$V_{GS(th)}$	0.6		1.6	0.6		1.5	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	$r_{DS(on)}$		0.0018	0.00225		0.0018	0.00225	Ω
	V_{GS} = 4.5 V			0.0021	0.00275		0.0022	0.00275	
Forward Transconductance		g_{fs}		150			95		S
Diode Forward Voltage		V_{SD}		0.65	1.1		0.63	1.1	V
Dynamic									
Total Gate Charge		Qg		46	70		50	75	nC
Gate-Source Charge		Qgs		9.5			12		
Gate-Drain Charge		Qgd		8.8			11		
Gate Resistance		Rg	0.5	1.1	1.7	0.5	1.2	1.8	Ω
Switching									
Turn-On Time*		$t_{d(on)}$		28	45		53	80	ns
		t_r		120	180		49	75	
Turn-Off Time*		$t_{d(off)}$		52	80		150	240	
		t_f		12	20		75	110	
Source-Drain Reverse Recovery Time		t_{rr}		50	75		65	100	

* Datasheet test conditions differ; R_L = 1 Ω, I_D = 10 A, Rg = 1 Ω on the Si7868ADP and R_L = 10 Ω, I_D = 1 A, Rg = 6 Ω on the Si7868DP.