



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		Q _g		46	70		50	75	nC
Gate-Source Charge		Q _{gs}		9.5			12		
Gate-Drain Charge		Q _{gd}		8.8			11		
Gate Resistance		R _g	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, R_g = 1 Ω on the Si7868ADP and R_L = 10 Ω, I_D = 1 A, R_g = 6 Ω on the Si7868DP.