



Si7900AEDN vs. Si7900EDN

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

Part Number Replacements:

Si7900AEDN-T1 Replaces Si7900EDN-T1
Si7900AEDN-T1—E3 (Lead Free version) Replaces Si7900EDN-T1

Summary of Performance:

The Si7900AEDN is the replacement for the original Si7900EDN; both parts perform identically including limits to the parametric tables below.

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)				
Parameter	Symbol	Si7900AEDN	Si7900EDN	Unit
Drain-Source Voltage	V_{DS}	20	20	V
Gate-Source Voltage	V_{GS}	± 12	± 12	
Continuous Drain Current	$T_A = 25^\circ\text{C}$	8.5	9	A
	$T_A = 85^\circ\text{C}$	6.4	6.4	
Pulsed Drain Current	I_{DM}	30	30	
Continuous Source Current (MOSFET Diode Conduction)	I_S	2.9	2.9	
Power Dissipation	$T_A = 25^\circ\text{C}$	2.9	3.2	W
	$T_A = 85^\circ\text{C}$	3.1	1.7	
Operating Junction and Storage Temperature Range	T_J and T_{stg}	-55 to 150	-55 to 150	$^\circ\text{C}$
Maximum Junction-to-Ambient	R_{thJA}	40	38	$^\circ\text{C/W}$

SPECIFICATIONS (T _J = 25 °C UNLESS OTHERWISE NOTED)									
Parameter		Symbol	Si7900AEDN			Si7900EDN			Unit
			Min	Typ	Max	Min	Typ	Max	
Static									
Gate-Threshold Voltage		V _{G(th)}	0.4		0.9	0.4			V
Gate-Body Leakage	V _{GS} = 12 V	I _{GSS}			± 1			± 1	μA
	V _{GS} = 4.5 V				± 10		± 10	mA	
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)}		0.020	0.026		0.020	0.026	Ω
	V _{GS} = 2.5 V			0.022	0.030		0.025	0.031	
	V _{GS} = 1.8 V			0.026	0.036		0.031	0.039	
Forward Transconductance		g _{fs}		25			25		S
Diode Forward Voltage		V _{SD}		0.65	1.1		0.65	1.1	V
Dynamic									
Total Gate Charge		Q _g		10.5	16		12.5	18	nC
Gate-Source Charge		Q _{gs}		1.9			2.7		
Gate-Drain Charge		Q _{gd}		1.8			2.7		
Switching									
Turn-On Time		t _{d(on)}		0.85	1.25		0.7	1.0	μs
		t _r		1.3	2.0		1.3	2.0	
Turn-Off Time		t _{d(off)}		8.6	13		5.5	8.0	
		t _f		4.29	6.5		5.5	8.0	