Si5513CDC vs. Si5513DC

Description: **N- and P-Channel 20-V (D-S) MOSFET**
Package: **1206-8 ChipFET®**
Pin Out: **Identical**

Part Number Replacements: Si5513CDC-T1-E3 replaces Si5513DC-T1
Si5513CDC-T1-E3 replaces Si5513DC-T1-E3

ABSOLUTE MAXIMUM RATINGS T_A = 25 °C, unless otherwise noted						
PARAMETER		**SYMBOL**		**Si5513CDC**	**Si5513DC**	**UNIT**
Drain-Source Voltage		V_{DS}	N-Ch	20	20	V
			P-Ch	- 20	- 20	
Gate-Source Voltage		V_{GS}	N-Ch	± 12	± 12	
			P-Ch			
Continuous Drain Current	T_A = 25 °C	I_D	N-Ch	4	4.2	A
			P-Ch	- 2.4	- 2.9	
	T_A = 70 °C[a]		N-Ch	3.5	3.0	
			P-Ch	- 1.9	- 2.1	
Pulsed Drain Current		I_{DM}	N-Ch	10	10	
			P-Ch	- 8	- 10	
Continuous Source Current (MOSFET Diode Conduction)		I_S	N-Ch	1.4	1.8	
			P-Ch	- 1.7	- 1.8	
Power Dissipation	T_A = 25 °C	P_D		3.1	2.1	W
	T_A = 85 °C			3.1	2.1	
Operating Junction and Storage Temperature Range		T_J and T_{stg}		- 55 to 150	- 55 to 150	°C
Maximum Junction-to-Ambient		R_{thJA}	N-Ch	74	60	°C/W
			P-Ch	95		

Note
T_A = 85 °C for Si5513DC.

SPECIFICATIONS T_J = 25 °C, unless otherwise noted										
PARAMETER		**SYMBOL**		**Si5513CDC**			**Si5513DC**			**UNIT**
				MIN.	**TYP.**	**MAX.**	**MIN.**	**TYP.**	**MAX.**	
Static										
Gate-Threshold Voltage		$V_{GS(th)}$	N-Ch	0.6		1.5	0.6		1.5	V
			P-Ch	- 0.6		- 1.5	- 0.6		- 1.5	
Gate-Body Leakage		I_{GSS}	N-Ch			± 100			± 100	nA
			P-Ch			± 100			± 100	
Zero Gate Voltage Drain Current		I_{DSS}	N-Ch			1			1	µA
			P-Ch			- 1			- 1	
On-State Drain Current	V_{GS} = 4.5 V	$I_{D(on)}$	N-Ch	10			10			A
	V_{GS} = - 4.5 V		P-Ch	- 8			- 10			
Drain-Source On-Resistance	V_{GS} = 4.5 V	$R_{DS(on)}$	N-Ch		0.045	0.055		0.065	0.075	Ω
	V_{GS} = - 4.5 V		P-Ch		0.120	0.150		0.130	0.155	
	V_{GS} = 2.5 V		N-Ch		0.065	0.085		0.115	0.134	
	V_{GS} = - 2.5 V		P-Ch		0.204	0.255		0.215	0.260	
Forward Transconductance		g_{fs}	N-Ch		12			8		S
			P-Ch		5			5		
Diode Forward Voltage		V_{SD}	N-Ch		0.8	1.2		0.8	1.2	V
			P-Ch		- 0.8	- 1.2		- 0.8	- 1.2	

SPECIFICATIONS T_J = 25 °C, unless otherwise noted									
PARAMETER	**SYMBOL**		**Si5513CDC**			**Si5513DC**			**UNIT**
			MIN.	**TYP.**	**MAX.**	**MIN.**	**TYP.**	**MAX.**	
Dynamic									
Total Gate Charge	Q_g	N-Ch		2.6	3.9		4	6	nC
		P-Ch		3.6	5.4		3	6	
Gate-Source Charge	Q_{gs}	N-Ch		0.7			0.6		
		P-Ch		0.6			0.9		
Gate-Drain Charge	Q_{gd}	N-Ch		0.5			1.3		
		P-Ch		1.2			0.6		
Gate Resistance	R_g	N-Ch	0.6	3	6		NS		Ω
		P-Ch	1.3	6.5	13		NS		

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.