



## Si2302CDS vs. Si2302ADS

**Description:** N-Channel, 20-V (D-S) MOSFET

**Package:** SOT-23

**Pin Out:** Identical

**Part Number Replacements:** Si2302CDS-T1-GE3 replaces Si2302ADS-T1-GE3

Si2302CDS-T1-GE3 replaces Si2302ADS-T1-E3

Si2302CDS-T1-GE3 replaces Si2302ADS-T1

<b>ABSOLUTE MAXIMUM RATINGS</b> $T_A = 25\text{ }^\circ\text{C}$ , unless otherwise noted					
PARAMETER	SYMBOL	Si2302CDS	Si2302ADS	UNIT	
Drain-Source Voltage	$V_{DS}$	20	20	V	
Gate-Source Voltage	$V_{GS}$	$\pm 8$	$\pm 8$		
Continuous Drain Current	$T_A = 25\text{ }^\circ\text{C}$	$I_D$	2.9	2.4	A
	$T_A = 70\text{ }^\circ\text{C}$		2.3	1.9	
Pulsed Drain Current	$I_{DM}$	10	10		
Continuous Source Current (MOSFET Diode Conduction)	$I_S$	0.72	0.94		
Power Dissipation	$T_A = 25\text{ }^\circ\text{C}$	$P_D$	0.86	0.9	W
	$T_A = 70\text{ }^\circ\text{C}$		0.55	0.57	
Operating Junction and Storage Temperature Range	$T_J$ and $T_{stg}$	- 55 to 150	- 55 to 150	$^\circ\text{C}$	
Maximum Junction-to-Ambient	$R_{thJA}$	145	140	$^\circ\text{C/W}$	

<b>SPECIFICATIONS</b> $T_J = 25\text{ }^\circ\text{C}$ , unless otherwise noted									
PARAMETER	SYMBOL	Si2302CDS			Si2302ADS			UNIT	
		MIN.	TYP.	MAX.	MIN.	TYP.	MAX.		
<b>Static</b>									
Gate-Threshold Voltage	$V_{GS(th)}$	0.4		0.85	0.65	0.95	1.2	V	
Gate-Body Leakage	$I_{GSS}$			$\pm 100$			$\pm 100$	nA	
Zero Gate Voltage Drain Current	$I_{DSS}$			1			0.1	$\mu\text{A}$	
On-State Drain Current	$V_{GS} = 10\text{ V}$	$I_{D(on)}$	6		6			A	
	$V_{GS} = 4.5\text{ V}$		NS		4				
Drain-Source On-Resistance	$V_{GS} = 10\text{ V}$	$R_{DS(on)}$		0.045	0.057		0.045	0.060	$\Omega$
	$V_{GS} = 4.5\text{ V}$			0.056	0.075		0.070	0.115	
Forward Transconductance	$g_{fs}$		13			8		S	
Diode Forward Voltage	$V_{SD}$		0.7	1.2		0.76	1.2	V	
<b>Dynamic</b>									
Input Capacitance	$C_{iss}$		NS			300		pF	
Output Capacitance	$C_{oss}$		NS			120			
Reverse Transfer Capacitance	$C_{rss}$		NS			80			
Gate Charge	$Q_g$		3.5	5.5		4	10	nC	
Gate-Source Charge	$Q_{gs}$		0.6			0.65			
Gate-Drain Charge	$Q_{gd}$		0.45			1.5			
Gate Resistance	$R_g$	2.0	4.0	8.0	0.5	NS	2.4	$\Omega$	
<b>Switching</b>									
Turn-On Time*	$t_{d(on)}$		8	15		7	15	ns	
	$t_r$		7	15		55	80		
Turn-Off Time*	$t_{d(off)}$		30	45		16	60		
	$t_f$		7	15		10	25		

**Note**

NS denotes not specified in original datasheet

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.