



Si2301BDS vs. Si2301DS

Description: P-Channel, 2.5 V (G-S) MOSFET

Package: SOT-23

Pin Out: Identical

Part Number Replacements:

Si2301BDS-T1 Replaces Si2301DS-T1

Si2301BDS-T1-E3 (Lead (Pb)-free version) Replaces Si2301DS-T1

ABSOLUTE MAXIMUM RATINGS $T_A = 25\text{ }^\circ\text{C}$, unless otherwise noted				
Parameter	Symbol	Si2301BDS	Si2301DS	Unit
Drain-Source Voltage	V_{DS}	- 20	- 20	V
Gate-Source Voltage	V_{GS}	± 8	± 8	
Continuous Drain Current	$T_A = 25\text{ }^\circ\text{C}$	I_D	- 2.4	A
	$T_A = 70\text{ }^\circ\text{C}$		- 1.9	
Pulsed Drain Current	I_{DM}	- 10	- 10	
Continuous Source Current (MOSFET Diode Conduction)	I_S	- 0.72	- 1.6	
Power Dissipation	$T_A = 25\text{ }^\circ\text{C}$	P_D	0.9	W
	$T_A = 70\text{ }^\circ\text{C}$		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}	175	166	$^\circ\text{C/W}$

SPECIFICATIONS $T_J = 25\text{ }^\circ\text{C}$, unless otherwise noted								
Parameter	Symbol	Si2301BDS			Si2301DS			Unit
		Min	Typ	Max	Min	Typ	Max	
Static								
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	- 20			- 20			V
Gate-Threshold Voltage	$V_{G(th)}$	- 0.45		- 0.95	- 0.45			
Gate-Body Leakage	I_{GSS}			± 100			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}			- 1			- 1	μA
On-State Drain Current	$V_{GS} = - 4.5\text{ V}$	$I_{D(on)}$	- 6		- 6			A
	$V_{GS} = - 2.5\text{ V}$		- 3		- 3			
Drain-Source On-Resistance	$V_{GS} = - 4.5\text{ V}$	$r_{DS(on)}$	0.080	0.100	0.105	0.130		Ω
	$V_{GS} = - 2.5\text{ V}$		0.110	0.150	0.145	0.190		
Forward Transconductance	g_{fs}		6.5		6.5			S
Diode Forward Voltage	V_{SD}		- 0.8	- 1.2	- 0.8	- 1.2		V
Dynamic								
Total Gate Charge	Q_g		4.5	10		5.8	10	nC
Gate-Source Charge	Q_{gs}		0.7			0.85		
Gate-Drain Charge	Q_{gd}		1.1			1.70		
Input Capacitance	C_{iss}		375			415		pF
Output Capacitance	C_{oss}		95			223		
Reverse Transfer Capacitance	C_{rss}		65			87		
Switching								
Turn-On Time	$t_{d(on)}$		20	30		13	25	ns
	t_r		40	60		36	60	
Turn-Off Time	$t_{d(off)}$		30	45		42	70	
	t_f		20	30		34	60	

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.