Si2306BDS vs. Si2306DS

Description: **N-Channel, 30 V (D-S) MOSFET**
Package: **SOT-23**
Pin Out: **Identical**

Part Number Replacements:
Si2306BDS-T1-E3 Replaces Si2306DS-T1-E3
Si2306BDS-T1-E3 Replaces Si2306DS-T1

ABSOLUTE MAXIMUM RATINGS T_A = 25 °C, unless otherwise noted

Parameter		Symbol	Si2306BDS	Si2306DS	Unit
Drain-Source Voltage		V_{DS}	30	30	V
Gate-Source Voltage		V_{GS}	± 20	± 20	
Continuous Drain Current	T_A = 25 °C	I_D	4.0	3.5	A
	T_A = 70 °C		3.5	2.8	
Pulsed Drain Current		I_{DM}	20	16	
Continuous Source Current (MOSFET Diode Conduction)		I_S	1.04	1.25	
Power Dissipation	T_A = 25 °C	P_D	1.25	1.25	W
	T_A = 70 °C		0.8	0.8	
Operating Junction and Storage Temperature Range		T_j and T_{stg}	- 55 to 150	- 55 to 150	°C
Maximum Junction-to-Ambient		R_{thJA}	100	100	°C/W

SPECIFICATIONS T_J = 25 °C, unless otherwise noted

Parameter		Symbol	Si2306BDS			Si2306DS			Unit
			Min	Typ	Max	Min	Typ	Max	
Static									
Gate-Threshold Voltage		$V_{G(th)}$	1.0		3.0	1.0		NS	V
Gate-Body Leakage		I_{GSS}			± 100			± 100	nA
Zero Gate Voltage Drain Current		I_{DSS}			0.5			0.5	µA
On-State Drain Current	V_{GS} = 10 V	$I_{D(on)}$	6			6			A
	V_{GS} = 4.5 V		NS			4			
Drain-Source On-Resistance	V_{GS} = 10 V	$r_{DS(on)}$		0.038	0.047		0.046	0.057	Ω
	V_{GS} = 4.5 V			0.052	0.065		0.070	0.094	
Forward Transconductance		g_{fs}		7			6.9		S
Diode Forward Voltage		V_{SD}		0.8	1.2		0.8	1.2	V
Dynamic									
Input Capacitance		C_{iss}		305			555		pF
Output Capacitance		C_{oss}		65			120		
Reverse Transfer Capacitance		C_{rss}		29			60		
Gate Charge		Q_g		3.0	4.5		4.2	7	nC
Total Gate Charge		Q_{gt}		6	9		8.5	20	
Gate-Source Charge		Q_{gs}		1.6			1.9		
Gate-Drain Charge		Q_{gd}		0.6			1.35		
Gate Resistance		R_g	2.5	5.0	7.5	0.5	NS	2.4	Ω
Switching									
Turn-On Time*		$t_{d(on)}$		7	11		9	20	ns
		t_r		12	18		7.5	18	
Turn-Off Time*		$t_{d(off)}$		14	25		17	35	
		t_f		6	10		5.2	12	

NS denotes not specified in 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.