Si9433BDY vs. Si9433DY

Description: **P-Channel, - 20 V (D-S) MOSFET**
Package: **SOIC-8**
Pin Out: **Identical**

Part Number Replacements:

Si9433BDY Replaces Si9433DY
Si9433BDY-E3 (Lead (Pb)-free version) Replaces Si9433DY
Si9433BDY-T1 Replaces Si9433DY-T1
Si9433BDY-T1-E3 (Lead (Pb)-free version) Replaces Si9433DY-T1

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

Parameter		Symbol	Si9433BDY	Si9433DY	Unit
Drain-Source Voltage		V_{DS}	- 20	- 20	V
Gate-Source Voltage		V_{GS}	± 12	± 12	
Continuous Drain Current	T_A = 25 °C	I_D	- 6.2	- 5.4	A
	T_A = 70 °C		- 5.0	- 4.4	
Pulsed Drain Current		I_{DM}	- 20	- 20	
Continuous Source Current (MOSFET Diode Conduction)		I_S	- 2.3	- 2.6	
Power Dissipation	T_A = 25 °C	P_D	2.5	2.5	W
	T_A = 70 °C		1.6	1.6	
Operating Junction and Storage Temperature Range		T_j and T_{stg}	- 55 to 150	- 55 to 150	°C
Maximum Junction-to-Ambient		R_{thJA}	50	50	°C/W

SPECIFICATIONS T_J = 25 °C, unless otherwise noted

Parameter		Symbol	Si9433BDY			Si9433DY			Unit
			Min	Typ	Max	Min	Typ	Max	
Static									
Gate-Threshold Voltage		$V_{GS(th)}$	- 0.6		- 1.5	- 0.8			V
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 V	$I_{D(on)}$	- 20			- 20			A
	V_{GS} = - 2.7 V		- 5			- 5			
Drain-Source On-Resistance	V_{GS} = - 4.5 V	$r_{DS(on)}$		0.030	0.040		0.032	0.045	Ω
	V_{GS} = - 2.7 V			0.050	0.060		0.052	0.070	
Forward Transconductance		g_{fs}		15			15		S
Diode Forward Voltage		V_{SD}		- 0.76	- 1.1		- 0.76	- 1.2	V
Dynamic									
Total Gate Charge		Q_g		8.8	14		20	60	nC
Gate-Source Charge		Q_{gs}		1.8			4		
Gate-Drain Charge		Q_{gd}		2.4			7		
Gate Resistance		R_g		8.5			NS		Ω
Switching									
Turn-On Time		$t_{d(on)}$		40	60		34	60	ns
		t_r		55	85		70	100	
Turn-Off Time		$t_{d(off)}$		65	100		76	180	
		t_f		30	45		61	100	
Source-Drain Reverse Recovery Time		t_{rr}		35	55		60	80	

NS denotes parameter not specified in original data sheet.

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.