Si6433BDQ vs. Si6433DQ

Description: **P-Channel, 2.5 V (G-S) MOSFET**
Package: **TSSOP-8**
Pin Out: **Identical**

Part Number Replacements:
Si6433BDQ-T1 Replaces Si6433DQ-T1
Si6433BDQ-T1-E3 (Lead (Pb)-free version) Replaces Si6433DQ-T1-E3 (Lead (Pb)-free version)

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

Parameter		Symbol	Si6433BDQ	Si6433DQ	Unit
Drain-Source Voltage		V_{DS}	- 12	- 12	V
Gate-Source Voltage		V_{GS}	± 8	± 8	
Continuous Drain Current	T_A = 25 °C	I_D	- 4.8	- 4.0	A
	T_A = 70 °C		- 3.9	- 3.2	
Pulsed Drain Current		I_{DM}	- 20	- 20	
Continuous Source Current (MOSFET Diode Conduction)		I_S	- 1.35	- 1.4	
Power Dissipation	T_A = 25 °C	P_D	1.5	1.5	W
	T_A = 70 °C		1.0	1.0	
Operating Junction and Storage Temperature Range		T_j and T_{stg}	- 55 to 150	- 55 to 150	°C
Maximum Junction-to-Ambient		R_{thJA}	83	83	°C/W

SPECIFICATIONS T_J = 25 °C, unless otherwise noted

Parameter		Symbol	Si6433BDQ			Si6433DQ			Unit
			Min	Typ	Max	Min	Typ	Max	
Static									
Gate-Threshold Voltage		$V_{GS(th)}$	- 0.6		- 1.5	- 0.6			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			- 10			A
	V_{GS} = - 2.5 V		NS			- 4			
Drain-Source On-Resistance	V_{GS} = - 4.5 V	$r_{DS(on)}$		0.032	0.040		0.040	0.06	Ω
	V_{GS} = - 2.5 V			0.053	0.070		0.060	0.09	
Forward Transconductance		g_{fs}		14			13		S
Diode Forward Voltage		V_{SD}		- 0.77	- 1.1		- 0.8	- 1.2	V
Dynamic									
Total Gate Charge		Q_g		10	15		20	40	nC
Gate-Source Charge		Q_{gs}		1.8			3.5		
Gate-Drain Charge		Q_{gd}		3			6.0		
Gate Resistance		R_g		7.7			NS		Ω
Switching									
Turn-On Time		$t_{d(on)}$		45	70		26	60	ns
		t_r		60	90		47	100	
Turn-Off Time		$t_{d(off)}$		70	110		87	180	
		t_f		35	55		47	100	
Source-Drain Reverse Recovery Time		t_{rr}		65			70	100	

NS denotes parameter not specified.

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.