Si6459BDQ vs. Si6459DQ

Description: **P-Channel, 60 V (D-S) MOSFET**
Package: **TSSOP-8**
Pin Out: **Identical**

Part Number Replacements:
Si6459BDQ-T1 Replaces Si6459DQ-T1
Si6459BDQ-T1-E3 (Lead (Pb)-free version) Replaces Si6459DQ-T1-E3 (Lead (Pb)-free version)

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

Parameter		Symbol	Si6459BDQ	Si6459DQ	Unit
Drain-Source Voltage		V_{DS}	- 60	- 60	V
Gate-Source Voltage		V_{GS}	± 20	± 20	
Continuous Drain Current	T_A = 25 °C	I_D	- 2.7	- 2.6	A
	T_A = 70 °C		- 2.2	- 2.1	
Pulsed Drain Current		I_{DM}	- 20	- 30	
Continuous Source Current (MOSFET Diode Conduction)		I_S	- 1.25	- 1.25	
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	Si6459BDQ			Si6459DQ			Unit
			Min	Typ	Max	Min	Typ	Max	
Static									
Gate-Threshold Voltage		$V_{GS(th)}$	- 1.0		- 3.0	- 1.0			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} = - 10 V	$I_{D(on)}$	- 20			- 20			A
Drain-Source On-Resistance	V_{GS} = - 10 V	$r_{DS(on)}$		0.092	0.115		0.100	0.120	Ω
	V_{GS} = - 4.5 V			0.120	0.150		0.125	0.150	
Forward Transconductance		g_{fs}		8			7.5		S
Diode Forward Voltage		V_{SD}		- 0.8	- 1.2		- 0.8	- 1.2	V
Dynamic									
Total Gate Charge		Q_g		14.5	22		16	25	nC
Gate-Source Charge		Q_{gs}		2.2			3.7		
Gate-Drain Charge		Q_{gd}		3.7			2.0		
Gate Resistance		R_g		14			NS		Ω
Switching									
Turn-On Time		$t_{d(on)}$		10	15		8	15	ns
		t_r		15	22		10	20	
Turn-Off Time		$t_{d(off)}$		50	75		35	50	
		t_f		35	55		12	25	
Source-Drain Reverse Recovery Time		t_{rr}		30	50		60	90	

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.