Si6544BDQ vs. Si6544DQ

Description: **N- and P-Channel, 30 V (D-S) MOSFET**
Package: **TSSOP-8**
Pin Out: **Identical**

Part Number Replacements:
Si6544BDQ-T1 Replaces Si6544DQ-T1
Si6544BDQ-T1-E3 (Lead (Pb)-free version) Replaces Si6544DQ-T1

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

Parameter		Symbol	Channel	Si6544BDQ	Si6544DQ	Unit
Drain-Source Voltage		V_{DS}	N-Ch P-Ch	30 - 30	30 - 30	V
Gate-Source Voltage		V_{GS}		± 20	± 20	
Continuous Drain Current	T_A = 25 °C	I_D	N-Ch P-Ch	4.3 - 3.8	4.0 - 3.5	A
	T_A = 70 °C		N-Ch P-Ch	3.5 - 3.0	3.2 - 2.8	
Pulsed Drain Current		I_{DM}	N-Ch P-Ch	20 - 20	20 - 20	
Continuous Source Current (MOSFET Diode Conduction)		I_S	N-Ch P-Ch	1.0 - 1.0	1.25 -125	
Power Dissipation	T_A = 25 °C	P_D		1.14	1.0	W
	T_A = 70 °C			1.14	0.64	
Operating Junction and Storage Temperature Range		T_j and T_{stg}		- 55 to 150	- 55 to 150	°C
Maximum Junction-to-Ambient		R_{thJA}		110	125	°C/W

SPECIFICATIONS T_J = 25 °C, unless otherwise noted

Parameter		Symbol	Channel	Si6544BDQ			Si6544DQ			Unit
				Min	Typ	Max	Min	Typ	Max	
Static										
Gate-Threshold Voltage		$V_{GS(th)}$	N-Ch P-Ch	1.0 - 1.0		3.0 - 3.0	1.0 - 1.0			V
Gate-Body Leakage		I_{GSS}				± 100			± 100	nA
Zero Gate Voltage Drain Current		I_{DSS}	N-Ch P-Ch			1 -1			1 -1	µA
On-State Drain Current	V_{GS} = 10 V	$I_{D(on)}$	N-Ch	20			20			A
	V_{GS} = - 10 V		P-Ch	- 20			- 20			
Drain-Source On-Resistance	V_{GS} = 10 V	$r_{DS(on)}$	N-Ch		0.025	0.032		0.027	0.035	Ω
	V_{GS} = - 10 V		P-Ch		0.034	0.043		0.035	0.045	
	V_{GS} = 4.5 V		N-Ch		0.037	0.046		0.038	0.050	
	V_{GS} = - 4.5 V		P-Ch		0.058	0.073		0.062	0.090	
Forward Transconductance		g_{fs}	N-Ch P-Ch		11 11			13 7.2		S
Diode Forward Voltage		V_{SD}	N-Ch P-Ch		0.77 - 0.77	1.1 - 1.1		0.73 - 0.77	1.2 - 1.2	V

Specification Comparison

Vishay Siliconix

SPECIFICATIONS T_J = 25 °C, unless otherwise noted									
Parameter	**Symbol**	**Channel**	**Si6544BDQ**			**Si6544DQ**			**Unit**
			Min	**Typ**	**Max**	**Min**	**Typ**	**Max**	
Dynamic									
Total Gate Charge	Q_g	N-Ch P-Ch		9.5 16	15 25		17.5 17	30 30	nC
Gate-Source Charge	Q_{gs}	N-Ch P-Ch		1.8 2.3			4.0 4.4		
Gate-Drain Charge	Q_{gd}	N-Ch P-Ch		1.55 4.5			2.5 3.1		
Gate Resistance	R_g	N-Ch P-Ch		0.45 8.8			NS		Ω
Switching									
Turn-On Time	$t_{d(on)}$	N-Ch P-Ch		13 14	25 25		12 13	20 20	ns
	t_r	N-Ch P-Ch		14 14	25 25		9 10	20 20	
Turn-Off Time	$t_{d(off)}$	N-Ch P-Ch		30 40	50 65		25 33	50 60	
	t_f	N-Ch P-Ch		10 30	20 50		20 10	40 20	
Source-Drain Reverse Recovery Time	t_{rr}	N-Ch P-Ch		30 30	60 60		25 30	60 60	

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.