



Si4451DY vs. Si4465DY

Description: P-Channel, 12 V (D-S) MOSFET
Package: SO-8
Pin Out: Identical

Part Number Replacements

Si4451DY-T1-E3 Replaces Si4465DY-T1-E3
 Si4451DY-T1 Replaces Si4465DY-T1

ABSOLUTE MAXIMUM RATINGS ($T_A = 25\text{ }^\circ\text{C}$, unless otherwise noted)				
Parameter	Symbol	Si4451DY	Si4465DY	Unit
Drain-Source Voltage	V_{DS}	- 12	- 8	V
Gate-Source Voltage	V_{GS}	± 8	± 8	
Continuous Drain Current	$T_A = 25\text{ }^\circ\text{C}$	I_D	- 14	A
	$T_A = 70\text{ }^\circ\text{C}$		- 11	
Pulsed Drain Current	I_{DM}	- 40	- 40	
Continuous Source Current (MOSFET Diode Conduction)	I_S	- 2.7	- 2.1	
Power Dissipation	$T_A = 25\text{ }^\circ\text{C}$	P_D	3.0	W
	$T_A = 70\text{ }^\circ\text{C}$		1.9	
Operating Junction and Storage Temperature Range	T_j and T_{stg}	- 55 to 150	- 55 to 150	$^\circ\text{C}$
Maximum Junction-to-Ambient	R_{thJA}	42	50	$^\circ\text{C/W}$

SPECIFICATIONS ($T_J = 25\text{ }^\circ\text{C}$, unless otherwise noted)								
Parameter	Symbol	Si4451DY			Si4465DY			Unit
		Min	Typ	Max	Min	Typ	Max	
Static								
Gate-Threshold Voltage	$V_{GS(th)}$	- 0.40		- 0.8	- 0.45		- 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	$V_{GS} = - 4.5\text{ V}$ $I_{D(on)}$	- 30			- 20			A
Drain-Source On-Resistance	$V_{GS} = - 4.5\text{ V}$ $r_{DS(on)}$		0.0065	0.00825		0.007	0.009	Ω
	$V_{GS} = - 2.5\text{ V}$		0.008	0.01025		0.009	0.011	
	$V_{GS} = - 1.8\text{ V}$		0.0105	0.013		0.012	0.016	
Forward Transconductance	g_{fs}		55			60		S
Diode Forward Voltage	V_{SD}		- 0.6	- 1.1		- 0.7	- 1.2	V
Dynamic								
Total Charge	Q_g		81	120		80	120	nC
Gate-Source Charge	Q_{gs}		8.6			15		
Gate-Drain Charge	Q_{gd}		23.4			9		
Gate Resistance	R_g		3.0			3.3	5	Ω
Switching								
Turn-On Time	$t_{d(on)}$		55	85		45	90	ns
	t_r		125	190		55	110	
Turn-Off Time	$t_{d(off)}$		315	480		380	760	
	t_f		235	360		190	380	
Source-Drain Reverse Recovery Time	t_{rr}		185	300		80	120	

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.