Si4431CDY vs. Si4431BDY

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

Part Number Replacements: Si4431CDY-T1-E3 replaces Si4431BDY-T1
Si4431CDY-T1-E3 replaces Si4431BDY-T1-E3

ABSOLUTE MAXIMUM RATINGS T_A = 25 °C, unless otherwise noted					
PARAMETER		**SYMBOL**	**SI4431CDY**	**Si4431BDY**	**UNIT**
Drain-Source Voltage		V_{DS}	- 30	- 30	V
Gate-Source Voltage		V_{GS}	± 20	± 20	
Continuous Drain Current	T_A = 25 °C	I_D	- 7.0	- 7.5	A
	T_A = 70 °C		- 5.6	- 6.0	
Pulsed Drain Current		I_{DM}	- 30	- 30	
Continuous Source Current (MOSFET Diode Conduction)		I_S	- 2.1	- 2.1	
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**	**SI4431CDY**			**Si4431BDY**			**UNIT**
			MIN.	**TYP.**	**MAX.**	**MIN.**	**TYP.**	**MAX.**	
Static									
Gate-Threshold Voltage		$V_{GS(th)}$	- 1.0		- 2.5	- 1.0		- 3.0	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			- 30			A
Drain-Source On-Resistance	V_{GS} = - 10 V	$R_{DS(on)}$		0.026	0.032		0.023	0.030	Ω
	V_{GS} = - 4.5 V			0.037	0.049		0.036	0.05	
Forward Transconductance		g_{fs}		18			18		S
Diode Forward Voltage		V_{SD}		- 0.71	- 1.2		- 0.78	- 1.1	V
Dynamic									
Total Charge[a]		Q_g[a]		13	20		13	20	nC
Gate-Source Charge		Q_{gs}		3.5			3.6		
Gate-Drain Charge		Q_{gd}		5.5			6		
Gate Resistance		R_g	0.4	2.0	4.0		NS		Ω

Note

NS denotes not specified in original datasheet

a. V_{GS} = - 5 V for Si4431BDY and - 4.5 V for Si4431CDY.

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.