Si4559ADY vs. Si4559EY

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

Part Number Replacements: Si4559ADY-T1-GE3 replaces Si4459EY-T1-GE3
Si4559ADY-T1-E3 or Si4559ADY-T1-GE3 replaces Si4559EY-T1-E3
Si4559ADY-T1-E3 or Si4559ADY-T1-GE3 replaces Si4559EY-T1

ABSOLUTE MAXIMUM RATINGS T_A = 25 °C, unless otherwise noted					
PARAMETER	**SYMBOL**		**Si4559ADY**	**Si4559EY**	**UNIT**
Drain-Source Voltage	V_{DS}	N-Ch	60	60	V
		P-Ch	- 60	- 60	
Gate-Source Voltage	V_{GS}	N-Ch	± 20	± 20	
		P-Ch	± 20	± 20	
Continuous Drain Current (T_A = 25 °C)	I_D	N-Ch	4.3	4.5	A
		P-Ch	- 3.0	- 3.1	
Continuous Drain Current (T_A = 70 °C)		N-Ch	3.4	3.8	
		P-Ch	- 2.4	- 2.6	
Pulsed Drain Current	I_{DM}	N-Ch	20	30	
		P-Ch	- 25	- 30	
Continuous Source Current (MOSFET Diode Conduction)	I_S	N-Ch	1.7	2.0	
		P-Ch	- 1.7	- 2.0	
Power Dissipation (T_A = 25 °C)	P_D		2	2.4	W
Power Dissipation (T_A = 70 °C)			1.3	1.7	
Operating Junction and Storage Temperature Range	T_J and T_{stg}		- 55 to 150	- 55 to 175	°C
Maximum Junction-to-Ambient	R_{thJA}		62.5	62.5	°C/W

SPECIFICATIONS T_J = 25 °C, unless otherwise noted									
			Si4559ADY			**Si4559EY**			
PARAMETER	**SYMBOL**		**MIN.**	**TYP.**	**MAX.**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Static									
Gate-Threshold Voltage	$V_{GS(th)}$	N-Ch	1		3	1		NS	V
		P-Ch	- 1		- 3	- 1		NS	
Gate-Body Leakage	I_{GSS}	N-Ch			± 100			± 100	nA
		P-Ch			± 100			± 100	
Zero Gate Voltage Drain Current	I_{DSS}	N-Ch			1			2	µA
		P-Ch			- 1			- 2	
On-State Drain Current (V_{GS} = 10 V)	$I_{D(on)}$	N-Ch	20			20			A
On-State Drain Current (V_{GS} = - 10 V)		P-Ch	- 25			- 20			
Drain-Source On-Resistance (V_{GS} = 10 V)	$R_{DS(on)}$	N-Ch		0.046	0.058		0.045	0.055	Ω
Drain-Source On-Resistance (V_{GS} = - 10 V)		P-Ch		0.1	0.120		0.100	0.120	
Drain-Source On-Resistance (V_{GS} = 4.5 V)		N-Ch		0.059	0.072		0.055	0.075	
Drain-Source On-Resistance (V_{GS} = - 4.5 V)		P-Ch		0.126	0.150		0.125	0.150	
Forward Transconductance	g_{fs}	N-Ch		15			13		S
		P-Ch		8.5			7.5		
Diode Forward Voltage	V_{SD}	N-Ch		0.8	1.2		0.9	1.2	V
		P-Ch		- 0.8	- 1.2		- 0.8	- 1.2	

SPECIFICATIONS T_J = 25 °C, unless otherwise noted									
			Si4559ADY			Si4559EY			
PARAMETER	**SYMBOL**		**MIN.**	**TYP.**	**MAX.**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Dynamic									
Total Gate Charge	Q_g	N-Ch		13	20		19	30	nC
		P-Ch		14.5	22		16	25	
Gate-Source Charge	Q_{gs}	N-Ch		2.3			4		
		P-Ch		2.2			4		
Gate-Drain Charge	Q_{gd}	N-Ch		2.6			3		
		P-Ch		3.7			1.6		
Gate Resistance	R_g	N-Ch		2	3		NS	NS	Ω
		P-Ch		14	20		NS	NS	

Note

NS denotes not specified in original specification

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.