Si3850ADV vs. Si3850DV

Description: **Complementary MOSFET Half-Bridge (N- and P-Channel)**
Package: **TSOP-6**
Pin Out: **Identical**

Part Number Replacements

Si3850ADV-T1-E3 Replaces Si3850DV-T1-E3
Si3850ADV-T1-E3 Replaces Si3850DV-T1

ABSOLUTE MAXIMUM RATINGS T_A = 25 °C, unless otherwise noted						
Parameter		**Symbol**		**Si3850ADV**	**Si3580DV**	**Unit**
Drain-Source Voltage		V_{DS}	N-Ch	20	20	V
			P-Ch	- 20	- 20	
Gate-Source Voltage		V_{GS}	N-Ch	± 12	± 12	
			P-Ch	± 12	± 12	
Continuous Drain Current	T_A = 25 °C	I_D	N-Ch	1.4	1.2	A
			P-Ch	- 0.96	- 0.85	
	T_A = 70 °C		N-Ch	1.1	0.95	
			P-Ch	- 0.77	- 0.65	
Pulsed Drain Current		I_{DM}	N-Ch	3.5	3.5	
			P-Ch	- 2.0	- 2.5	
Continuous Source Current (MOSFET Diode Conduction)		I_S	N-Ch	0.9	1	
			P-Ch	- 0.9	- 1	
Power Dissipation	T_A = 25 °C	P_D		1.08	1.25	W
	T_A = 70 °C			0.7	0.8	
Operating Junction and Storage Temperature Range		T_j and T_{stg}		- 55 to 150	- 55 to 150	°C
Maximum Junction-to-Ambient		R_{thJA}		115	100	°C/W

SPECIFICATIONS T_J = 25 °C, unless otherwise noted										
Parameter		**Symbol**		**Si3850ADV**			**Si3850DV**			**Unit**
				Min	**Typ**	**Max**	**Min**	**Typ**	**Max**	
Static										
Gate-Threshold Voltage		$V_{GS(th)}$	N-Ch	0.6		1.5	0.6		1.5	V
			P-Ch	- 0.6		- 1.5	- 0.6		- 1.5	
Gate-Body Leakage		I_{GSS}	N-Ch			± 100			± 100	nA
			P-Ch			± 100			± 100	
Zero Gate Voltage Drain Current		I_{DSS}	N-Ch			1			1	µA
			P-Ch			- 1			- 1	
On-State Drain Current	V_{GS} = 4.5 V	$I_{D(on)}$	N-Ch	3.0			3.0			A
	V_{GS} = - 4.5 V		P-Ch	- 1.5			- 2.0			
Drain-Source On-Resistance	V_{GS} = 4.5 V	$r_{DS(on)}$	N-Ch		0.240	0.300		0.38	0.500	Ω
	V_{GS} = - 4.5 V		P-Ch		0.510	0.640		0.7	1.0	
	V_{GS} = 3.0 V		N-Ch		0.325	0.410		0.55	0.750	
	V_{GS} = - 3.0 V		P-Ch		0.780	0.980		1.1	1.3	
Forward Transconductance		g_{fs}	N-Ch		1.8			2.7		S
			P-Ch		1.1			1.2		
Diode Forward Voltage		V_{SD}	N-Ch		0.87	1.2			1.2	V
			P-Ch		- 1.0	- 1.3			- 1.2	
Dynamic										
Total Gate Charge		Q_g	N-Ch		0.95	1.4		0.8	2.0	nC
			P-Ch		1.10	1.7		1.10	2.5	
Gate-Source Charge		Q_{gs}	N-Ch		0.22			0.25		
			P-Ch		0.28			0.5		
Gate-Drain Charge		Q_{gd}	N-Ch		0.24			0.2		
			P-Ch		0.26			0.2		
Gate Resistance		R_g	N-Ch		3.5	5.3	0.3		1.5	Ω
			P-Ch		10.5	16	3		16	
Switching[a]										
Turn-On Time		$t_{d(on)}$	N-Ch		8	14		10	20	ns
			P-Ch		13	20		8	15	
		t_r	N-Ch		16	25		20	40	
			P-Ch		34	50		20	40	
Turn-Off Time		$t_{d(off)}$	N-Ch		20	30		20	40	
			P-Ch		18	30		10	20	
		t_f	N-Ch		9	15		16	30	
			P-Ch		18	30		8	15	
Source-Drain Reverse Recovery Time		t_{rr}	N-Ch		20	30		40	80	
			N-Ch		25	40		40	80	

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.