



## 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

<b>ABSOLUTE MAXIMUM RATINGS</b> $T_A = 25\text{ }^\circ\text{C}$ , unless otherwise noted					
Parameter		Symbol	Si3850ADV	Si3850DV	Unit
Drain-Source Voltage		$V_{DS}$	N-Ch	20	V
			P-Ch	- 20	
Gate-Source Voltage		$V_{GS}$	N-Ch	$\pm 12$	V
			P-Ch	$\pm 12$	
Continuous Drain Current	$T_A = 25\text{ }^\circ\text{C}$	$I_D$	N-Ch	1.4	A
			P-Ch	- 0.96	
	$T_A = 70\text{ }^\circ\text{C}$		N-Ch	1.1	
			P-Ch	- 0.77	
Pulsed Drain Current		$I_{DM}$	N-Ch	3.5	A
			P-Ch	- 2.0	
Continuous Source Current (MOSFET Diode Conduction)		$I_S$	N-Ch	0.9	A
			P-Ch	- 0.9	
Power Dissipation	$T_A = 25\text{ }^\circ\text{C}$	$P_D$	1.08	1.25	W
	$T_A = 70\text{ }^\circ\text{C}$		0.7	0.8	
Operating Junction and Storage Temperature Range		$T_J$ and $T_{stg}$	- 55 to 150	- 55 to 150	$^\circ\text{C}$
Maximum Junction-to-Ambient		$R_{thJA}$	115	100	$^\circ\text{C/W}$

# Specification Comparison

Vishay Siliconix



<b>SPECIFICATIONS</b> $T_J = 25\text{ }^\circ\text{C}$ , unless otherwise noted									
Parameter	Symbol	Si3850ADV			Si3850DV			Unit	
		Min	Typ	Max	Min	Typ	Max		
<b>Static</b>									
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			$\pm 100$			$\pm 100$	nA
		P-Ch			$\pm 100$			$\pm 100$	
Zero Gate Voltage Drain Current	$I_{DSS}$	N-Ch			1			1	$\mu\text{A}$
		P-Ch			- 1			- 1	
On-State Drain Current	$V_{GS} = 4.5\text{ V}$	$I_{D(on)}$	N-Ch	3.0			3.0		A
	$V_{GS} = - 4.5\text{ V}$		P-Ch	- 1.5			- 2.0		
Drain-Source On-Resistance	$V_{GS} = 4.5\text{ V}$	$r_{DS(on)}$	N-Ch	0.240	0.300		0.38	0.500	$\Omega$
	$V_{GS} = - 4.5\text{ V}$		P-Ch	0.510	0.640		0.7	1.0	
	$V_{GS} = 3.0\text{ V}$		N-Ch	0.325	0.410		0.55	0.750	
	$V_{GS} = - 3.0\text{ V}$		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	
<b>Dynamic</b>									
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		nC
		P-Ch		0.28			0.5		
Gate-Drain Charge	$Q_{gd}$	N-Ch		0.24			0.2		nC
		P-Ch		0.26			0.2		
Gate Resistance	$R_g$	N-Ch		3.5	5.3	0.3		1.5	$\Omega$
		P-Ch		10.5	16	3		16	
<b>Switching<sup>a</sup></b>									
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	ns
		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	ns
		P-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.