

**SCOPE: DUAL POWER MOSFET DRIVER**

<u>Device Type</u>	<u>Generic Number</u>	<u>Circuit Function</u>
<u>01</u>	<u>TSC426M(x)/883B</u>	<u>Dual Power Inverting MOSFET Driver</u>
<u>02</u>	<u>TSC427M(x)/883B</u>	<u>Dual Power Noninverting MOSFET Driver</u>
<u>03</u>	<u>TSC428M(x)/883B</u>	<u>Dual Power Inverting/Noninverting MOSFET Driver</u>

**Case Outline(s).** The case outlines shall be designated in Mil-Std-1835 and as follows:

<u>Outline Letter</u>	<u>Mil-Std-1835</u>	<u>Case Outline</u>	<u>Package Code</u>
<u>JA</u>	<u>GDIP1-T8 or CDIP2-T8</u>	<u>8 LEAD CERDIP</u>	<u>J8</u>
<u>NP</u>	<u>COCC1-N20</u>	<u>20 Leadless Carrier</u>	<u>L20</u>

**Absolute Maximum Ratings**

Supply Voltage  $V_{DD}$  to GND ..... 20V  
 Input Voltage .....  $V_{DD} + 0.3V$  to GND  $-0.3V$   
 Output Current (per pin, capacitive load) ..... 1.5A  
 Peak Supply Current or GND Current (per pin) ..... 3.0A

Lead Temperature (soldering, 10 seconds) .....  $+300^{\circ}C$   
 Storage Temperature .....  $-65^{\circ}C$  to  $+150^{\circ}C$

Continuous Power Dissipation .....  $T_A = +70^{\circ}C$   
 8 pin CERDIP (derate  $8.0mW/^{\circ}C$  above  $+70^{\circ}C$ ) ..... 640mW  
 20 pin LCC (derate  $9.1mW/^{\circ}C$  above  $+70^{\circ}C$ ) ..... 727mW  
 Junction Temperature  $T_J$  .....  $+150^{\circ}C$

Thermal Resistance, Junction to Case,  $\Theta_{JC}$

8 pin CERDIP .....  $55^{\circ}C/W$   
 20 pin LCC .....  $20^{\circ}C/W$

Thermal Resistance, Junction to Ambient,  $\Theta_{JA}$ :

8 pin CERDIP .....  $125^{\circ}C/W$   
 20 pin LCC .....  $110^{\circ}C/W$

**Recommended Operating Conditions**

Ambient Operating Range ( $T_A$ ) .....  $-55^{\circ}C$  to  $+125^{\circ}C$   
 Supply Voltage Range .....  $4.5V \leq V_{DD} \leq 18V$

	<b>Package</b>	<b>ORDERING INFORMATION:</b>	<b>SMD Number</b>
01	8 pin CERDIP	TSC426MJA/883B	5962-8850301PA
01	20 pin LCC	TSC426MNP/883B	5962-88503012C
02	8 pin CERDIP	TSC427MJA/883B	5962-8850302PA
02	20 pin LCC	TSC427MNP/883B	5962-88503022C
03	8 pin CERDIP	TSC428MJA/883B	5962-8850303PA
03	20 pin LCC	TSC428MNP/883B	5962-88503032C

Stresses beyond those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

**TABLE 1. ELECTRICAL TESTS:**

TEST	Symbol	CONDITIONS		Group A Subgroup	Device type	Limits Min	Limits Max	Units
		-55 °C <=T <sub>A</sub> <= +125°C	+4.5V<=V <sub>S</sub> <=18V					
Logic 1 Input Voltage	V <sub>IH</sub>	Unless otherwise specified		1,2,3	All	2.4		V
Logic 0 Input Voltage	V <sub>IL</sub>			1,2,3	All		0.8	V
Input Voltage Range	V <sub>IN(max)</sub>			1,2,3	All	0	V <sub>DD</sub>	V
Input Current	I <sub>IN</sub>	V <sub>IN</sub> =0V to 18V		1,2,3	All		±1 ±10	µA
Output High Voltage	V <sub>OH</sub>	RL=∞	NOTE 1	1,2,3	All	V <sub>DD</sub> -25		mV
Output Low Voltage	V <sub>OL</sub>	RL=∞	NOTE 1	1,2,3	All		25	mV
Output Resistance	R <sub>OUT</sub>	Apply V <sub>IN</sub> to force V <sub>OUT</sub> high. V <sub>DD</sub> =18V, I <sub>OUT</sub> =10mA, V <sub>IN</sub> =0.8V for inverting stages, V <sub>IN</sub> =2.4V for noninverting stages		1,2,3	All		20	Ω
Output Resistance	R <sub>OUT</sub>	Apply V <sub>IN</sub> to force V <sub>OUT</sub> low. V <sub>DD</sub> =18V, I <sub>OUT</sub> =10mA, V <sub>IN</sub> =0.8V for noninverting stages V <sub>IN</sub> =2.4V for inverting stages		1,2,3	All		15	Ω
Power Supply Current	I <sub>S1</sub>	V <sub>IN</sub> =+3V, both inputs		1 2,3	01		8 12	mA
Power Supply Current	I <sub>S2</sub>	V <sub>IN</sub> =0V, both inputs		1 2,3	01		0.4 0.6	mA
Rise Time	NOTE 2	t <sub>R</sub>	V <sub>DD</sub> =18V	NOTE 2	9,10,11	All	60	ns
Fall Time	NOTE 2	t <sub>F</sub>	V <sub>DD</sub> =18V	NOTE 2	9,10,11	All	40	ns
Delay Time	NOTE 1	t <sub>D1</sub>	V <sub>DD</sub> =18V	NOTE 2	9,10,11	All	60	ns
Delay Time	NOTE 1	t <sub>D2</sub>	V <sub>DD</sub> =18V	NOTE 2	9,10,11	All	120	ns

NOTE 1: Guaranteed by design.

NOTE 2: Subgroups 10 and 11 are guaranteed if not tested to the limits specified in Table 1.

**TERMINAL CONNECTIONS FOR 01, 02, 03.**

8 PIN CERDIP				20 PIN LCC							
	01	02	03		01	02	03		01	02	03
1	NC	NC	NC	1	NC	NC	NC	11	NC	NC	NC
2	INA	INA	INA	2	NC	NC	NC	12	NC	NC	NC
3	GND	GND	GND	3	NC	NC	NC	13	NC	NC	NC
4	INB	INB	INB	4	INA	INA	INA	14	OUTB	OUTB	OUTB
5	OUTB	OUTB	OUTB	5	NC	NC	NC	15	NC	NC	NC
6	V <sub>DD</sub>	V <sub>DD</sub>	V <sub>DD</sub>	6	GND	GND	GND	16	V <sub>DD</sub>	V <sub>DD</sub>	V <sub>DD</sub>
7	OUTA	OUTA	OUTA	7	NC	NC	NC	17	NC	NC	NC
8	NC	NC	NC	8	INB	INB	INB	18	OUTA	OUTA	OUTA
				9	NC	NC	NC	19	NC	NC	NC
				10	NC	NC	NC	20	NC	NC	NC

## QUALITY ASSURANCE

Sampling and inspection procedures shall be in accordance with MIL-Prf-38535, Appendix A as specified in Mil-Std-883.

Screening shall be in accordance with Method 5004 of Mil-Std-883. Burn-in test Method 1015:

1. Test Condition, A, B, C, or D.
2. TA = +125°C minimum.
3. Interim and final electrical test requirements shall be specified in Table 2.

Quality conformance inspection shall be in accordance with Method 5005 of Mil-Std-883, including Groups A, B, C, and D inspection.

Group A inspection:

1. Tests as specified in Table 2.
2. Selected subgroups in Table 1, Method 5005 of Mil-Std-883 shall be omitted.

Group C and D inspections:

- a. End-point electrical parameters shall be specified in Table 1.
- b. Steady-state life test, Method 1005 of Mil-Std-883:
  1. Test condition A, B, C, D.
  2. TA = +125°C, minimum.
  3. Test duration, 1000 hours, except as permitted by Method 1005 of Mil-Std-883.

**TABLE 2. ELECTRICAL TEST REQUIREMENTS**

Mil-Std-883 Test Requirements	Subgroups per Method 5005, Table 1
Interim Electric Parameters Method 5004	1
Final Electrical Parameters Method 5005	1*, 2, 3, 9, 10**, 11**
Group A Test Requirements Method 5005	1, 2, 3, 9, 10**, 11**
Group C and D End-Point Electrical Parameters Method 5005	1

\* PDA applies to Subgroup 1 only.

\*\* Subgroups 10 and 11, if not tested, shall be guaranteed to the specified limits of Table 1.