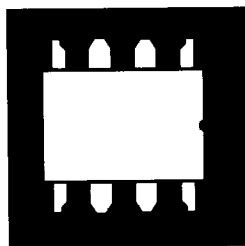


HIGH-SPEED, HIGH-CURRENT SINGLE MOSFET DRIVER IN CERDIP PACKAGE



6 Amp, 25 nsec High-Speed, High-Current Single MOSFET Driver, Inverting and Non-Inverting

FEATURES

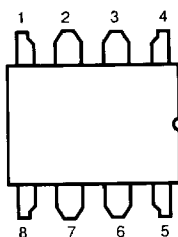
- CMOS Construction
- Latch-Up Protected
- Hermetic Metal Package
- Logic Input Will Withstand Negative Swing Up To 6 V
- Matched Rise and Fall Times 25 ns
- High Peak Output Current 6.0 A Peak
- Wide Operating Range 4.5 V to 18 V
- High Capacitive Load Drive 10,000 pF in 60 nS
- Low Delay Time 55 nS Typ.
- Rise Time, $C_L = 2,500$ pF 20 nS
- Fall Time, $C_L = 2,500$ pF 20 nS
- Consistent Delay Times With Changes In Voltage Delay Source
- Logic High Input For Any Voltage From 2.4 V to V_{S+}
- Logic Input Threshold Independent of Supply Voltage
- Low Supply Current 450 μ A With Logic 1 Input
55 μ A With Logic 0 Input
- Low Output Impedence 2.5 Ω
- Output Voltage Swing To Within 25 mV of Ground or V_{S+}

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DESCRIPTION

The OM4420MJ and OM4429MJ are CMOS constructed Power MOSFET drivers capable of driving high current MOSFETs. These easy-to-use drivers are packaged in 8-Pin CerDip packages and are ideally suited for Military applications where small size and high reliability are required. These devices are pin compatible with Teledyne TSC4420/4429 and TSC429 devices. The OM4420MJ is a non-inverting device and the OM4429MJ is an inverting device both rated at 6 A (peak).

PIN CONNECTION



- Pin 1 = V_{S+}
- Pin 2 = Input
- Pin 3 = NC
- Pin 4 = Gnd
- Pin 5 = Gnd
- Pin 6 = Output
- Pin 7 = Output
- Pin 8 = V_{S+}

ABSOLUTE MAXIMUM RATINGS

Supply Voltage	20 V
Input Voltage Any Terminal	$V_S + 0.3 \text{ V}$ to Ground -0.3 V
Power Dissipation	1.0 W
Operating Temperature	-55° C to 125° C
Maximum Chip Temperature	150° C
Storage Temperature	-55° C to 150° C

OM4429MJ ELECTRICAL CHARACTERISTICS: $T_A = 25^\circ \text{C}$ with $4.5 \text{ V} \leq V_S \leq 18 \text{ V}$ unless otherwise specified.

Type	Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
INPUT	V_{IH}	Logic 1 Input Voltage		2.4	1.8	-	V
	V_{IL}	Logic 0 Input Voltage		-	1.3	0.8	V
	I_{IN}	Input Current	$0 \text{ V} \leq V_{IN} \leq V_S$	-10	-	10	μA
OUTPUT	V_{OH}	High Output Voltage		$V_S - 0.025$	-	-	V
	V_{OL}	Low Output Voltage		-	-	0.025	V
	R_O	Output Resistance	$V_{IN} = 0.8 \text{ V}$; for 4420, $V_{IN} = 2.4 \text{ V}$, $I_{OUT} = 10 \text{ mA}$, $V_S = 18 \text{ V}$	-	2.1	2.8	Ω
	R_O	Output Resistance	$V_{IN} = 2.4 \text{ V}$; for 4420, $V_{IN} = 0.8 \text{ V}$, $I_{OUT} = 10 \text{ mA}$, $V_S = 18 \text{ V}$	-	1.5	2.5	Ω
	I_{PK}	Peak Output Current	$V_S = 18 \text{ V}$	-	6.0	-	A
	I	Latch-Up Protection	Withstand Reverse Current	> 500	-	-	mA
SWITCHING	T_R	Rise Time	$C_L = 2500 \text{ pF}$	-	20	30	nS
	T_F	Fall Time	$C_L = 2500 \text{ pF}$	-	20	30	nS
	T_{D1}	Delay Time		-	55	60	nS
	T_{D2}	Delay Time		-	55	60	nS
POWER SUPPLY	I_S	Power Supply Current	$V_{IN} = 3.0 \text{ V}$	-	0.45	1.5	mA
	I_S	Power Supply Current		-	55	150	μA

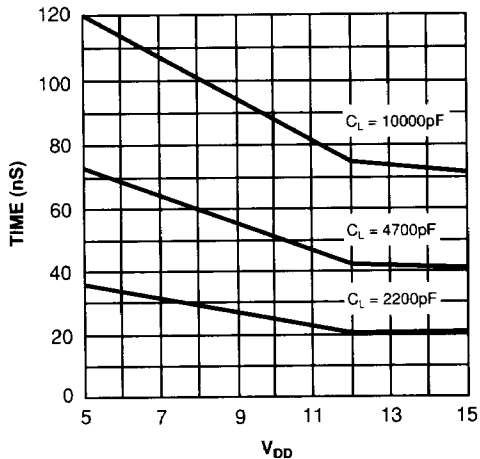
OM4429MJ ELECTRICAL CHARACTERISTICS: Over operating Temperature range with $4.5 \text{ V} \leq V_S \leq 18 \text{ V}$ unless otherwise specified.

Type	Symbol	Parameter	Conditions	Min.	Typ.	Max.	Units
INPUT	V_{IH}	Logic 1 Input Voltage		2.4	-	-	V
	V_{IL}	Logic 0 Input Voltage		-	-	0.8	V
	I_{IN}	Input Current	$0 \text{ V} \leq V_{IN} \leq V_S$	-10	-	10	μA
OUTPUT	V_{OH}	High Output Voltage		$V_S - 0.025$	-	-	V
	V_{OL}	Low Output Voltage		-	-	0.025	V
	R_O	Output Resistance	$V_{IN} = 0.8 \text{ V}$; for 4420, $V_{IN} = 2.4 \text{ V}$, $I_{OUT} = 10 \text{ mA}$, $V_S = 18 \text{ V}$	-	3.0	5.0	Ω
	R_O	Output Resistance	$V_{IN} = 2.4 \text{ V}$; for 4420, $V_{IN} = 0.8 \text{ V}$, $I_{OUT} = 10 \text{ mA}$, $V_S = 18 \text{ V}$	-	2.3	5.0	Ω
SWITCHING	T_R	Rise Time	$C_L = 2500 \text{ pF}$	-	32	60	nS
	T_F	Fall Time	$C_L = 2500 \text{ pF}$	-	34	60	nS
	T_{D1}	Delay Time		-	50	100	nS
	T_{D2}	Delay Time		-	65	100	nS
POWER SUPPLY	I_S	Power Supply Current	$V_{IN} = 3.0 \text{ V}$	-	0.45	3.0	mA
	I_S	Power Supply Current	$V_{IN} = 0.0 \text{ V}$	-	.06	0.4	μA

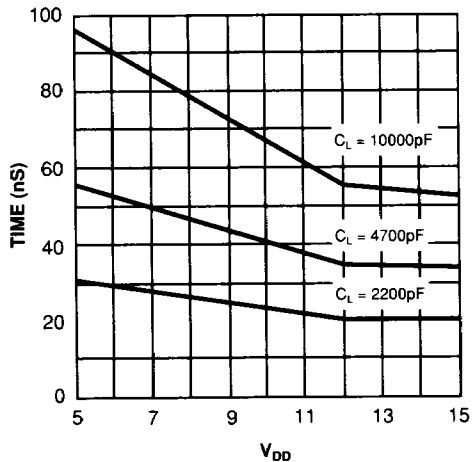
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TYPICAL CHARACTERISTIC CURVES

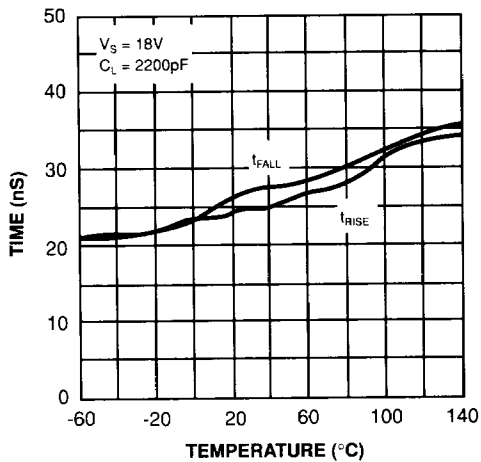
RISE TIME VS. SUPPLY VOLTAGE



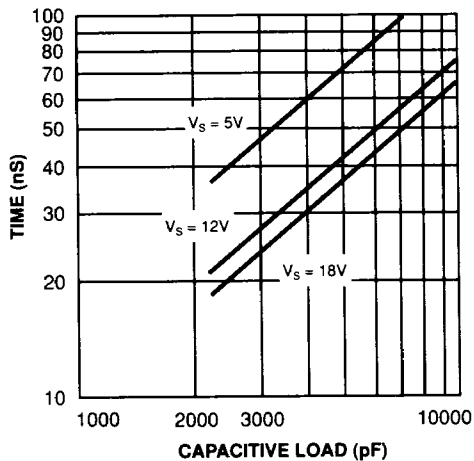
FALL TIME VS. SUPPLY VOLTAGE



RISE AND FALL TIME VS. TEMPERATURE

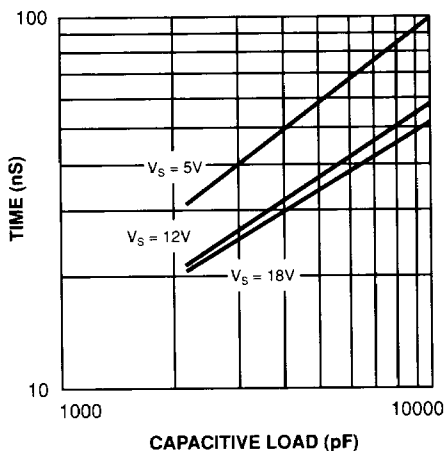


RISE TIME VS. CAPACITIVE LOAD

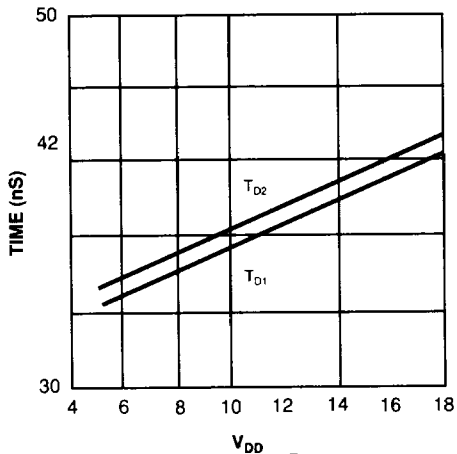


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FALL TIME VS. CAPACITIVE LOAD

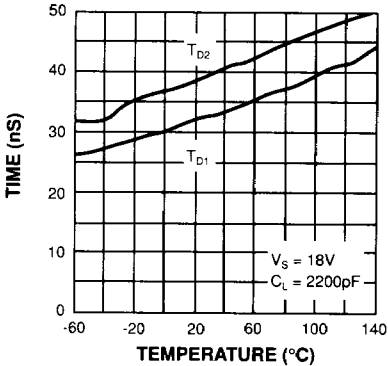


DELAY TIME VS. SUPPLY VOLTAGE

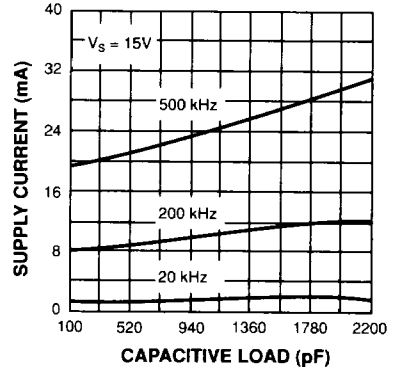


TYPICAL CHARACTERISTIC CURVES (CONT'D)

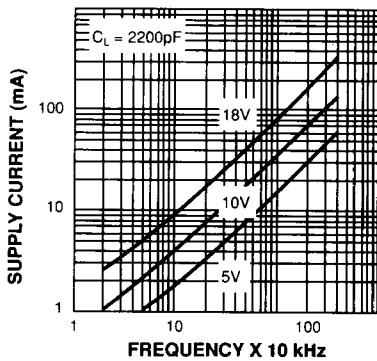
DELAY TIME VS. TEMPERATURE



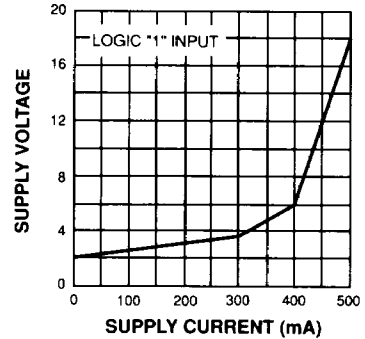
SUPPLY CURRENT VS. CAPACITIVE LOAD



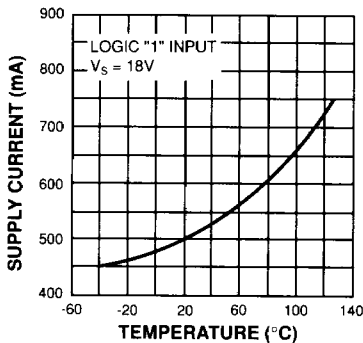
SUPPLY CURRENT VS. FREQUENCY



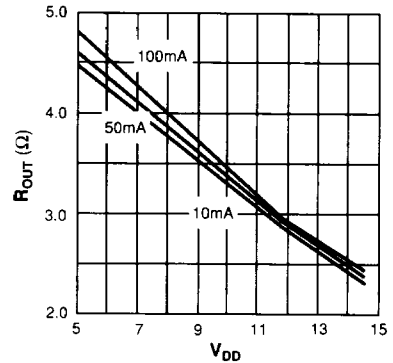
QUIESCENT POWER SUPPLY CURRENT VS. SUPPLY VOLTAGE



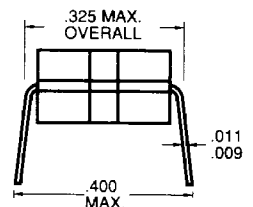
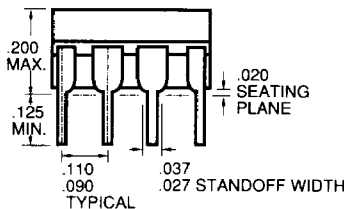
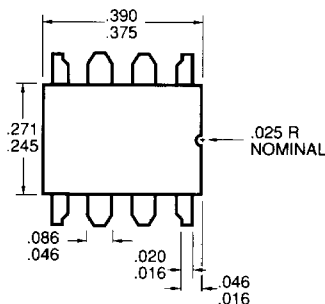
QUIESCENT POWER SUPPLY CURRENT VS. TEMPERATURE



HIGH STATE OUTPUT RESISTANCE



MECHANICAL OUTLINE



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