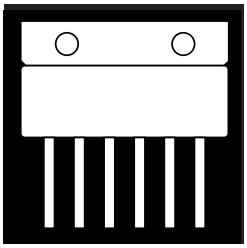
Preliminary Data Sheet

HIGH-CURRENT, PROTECTED 'SMART-POWER' MODULE FOR BIDIRECTIONAL DRIVE OF DC ACTUATOR



5 Amp, 52 Volt, Bidirectional 'Smart' Module With Thermal Protection Provides Direct, 'Stand Alone' Drive For DC Actuator, Motors, Etc.

FEATURES

- Dedicated Design: 2 Power Inputs, 2 Power Outputs And Ground
- Monolithic Control, Power And Thermal Protection
- BCDMOS 'Smart-Power' Low ON Resistance NMOS FETs
- Output Current Continuous To 4 Amps (RMS)
- Output Current (Peak) To 5 Amps
- Efficient, Low-Power BCDMOS Circuitry
- Stand Alone Capability For 12 To 28 Volt Actuator
- Current Direction Fixed By 'Steering' Input Power (A or B)
- Internal Lockout Circuitry (No Simultaneous Conduction)
- Internal (Inductive) Transient Suppression (Diodes Plus RC Snubber)
- Thermal Shutdown Protection (+150°C Nominal)
- Small, Standard 6 Lead Hermetic SIP
- Compatible With Electronic And Electromechanical Systems

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DESCRIPTION

The OM3460SS provides protected bidirectional drive for dc actuator. The module supply operating voltage range is 12 Volts to 36 Volts, and this 'smart-power' device is very useful in 28 Volt aircraft systems. No signal inputs are required for operation; the direction of output current is 'steered' from one of the two Power Input Terminals (A_{IN}; B_{IN}). The load power is applied via either the A_{IN} or B_{IN} terminals in normal operation; and simultaneous application of power is **not a normal operating mode**. The two 'low-side' output FETs are instantaneously disabled should the system produce a fault/flaw condition which results in power being applied simultaneously to both the A_{IN} and B_{IN} connections. This prevents unwanted, potentially damaging, cross-conduction in the power output FETs; and no power is applied to the load. This module is very compatible with most electromechanical and electronic systems; and can easily be controlled by semiconductor devices, relays, limit switches, etc. Additionally, the module includes thermal shutdown protection (nominally +150°C) and integral diodes and RC snubber network for inductive transient suppression.

ABSOLUTE MAXIMUM RATINGS (@ 25°C)

Supply Voltage Range, V_{SS} . . . . . 12 V to 38 V
Continuous Output Current, I_{OUT} . . . . . 4.0 A
Peak Out Current, $I_{OUT\ (PK)}$ . . . . . 5.0 A
Non-Repetitive Pulsed Output Current, (<1ms), $I_{OUT(PUL)}$ . . . . . 10 A
Thermal Resistance, Junction-to-Case, R_{qJC} . . . . . TBD
Operating Temperature Range, T_A . . . . . - 55° C to + 125° C
Storage Temperature Range, T_S . . . . . - 65° C to + 150° C

RECOMMENDED OPERATING CONDITIONS (Over Specified Temperature Range)

Supply Voltage Range, V_{SS} . . . . . 12 V to 36 V
Continuous Output Current, I_{OUT} . . . . . 3.0 A
Case Temperature, T_C . . . . . +100°C
Junction Temperature, T_J . . . . . +140°C

ELECTRICAL CHARACTERISTICS (V_{SS} = 28V; T_A = +25°C or as noted)

Module Test and Applicable Conditions	Min.	Typ.	Max.	Units
Total ON Voltage, V_{ON} (I_{ON} = 1A; total voltage drop)		1.4	1.9	V
(I_{ON} = 3A; sum: per truth table)		2.8	4.2	V
Output ON Resistance, $R_{DS(on)}$ (sinking outputs only)		0.3	0.55	
Output Leakage, $I_{DS(off)}$ (V_{SS} = 37V: per Truth Table			1	mA
Clamping Voltage, V_{CL} (I_{SD} = 10mA; A_{IN}/B_{IN} = Open)	TBD	40	42.5	V
Quiescent Supply Current, I_S (Outputs = Open)		<10	TBD	mA
Thermal Shutdown, T_J		150		°C

TRUTH TABLE

A_{IN}	B_{IN}	Output 1	Output 2	Output/Load Condition
Open	Open	Off	Off	All Output FETs: Off State
+28 V	Open	High	Low	Load Current: Out 1 > Out 2
Open	+28 V	Low	High	Load Current: Out 1 < Out 2
+28 V*	+28 V*	High	High	Fault Mode: No Load Current

*Note: Fault/Flaw Mode on Input Power to Module; Load/Outputs: Non-Conducting Mode

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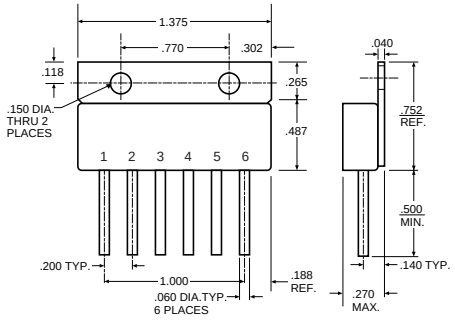
Mechanical Outline



Pin 1: Output 2
Pin2: A_{IN} (Power IN_A)
Pin 3: Output 1
Pin 4: Ground
Pin 5: No Connection
Pin 6: B_{IN} (Power IN_B)

Typical Application