

# SEMITRONICS CORP.

64 Commercial Street, Freeport, N.Y. 11520  
 Phone: (516) 623-9400 • Fax. (516) 623-6954

## SES838

30 Amp 200 Volt  
 Three Phase Mosfet Bridge

### FEATURES

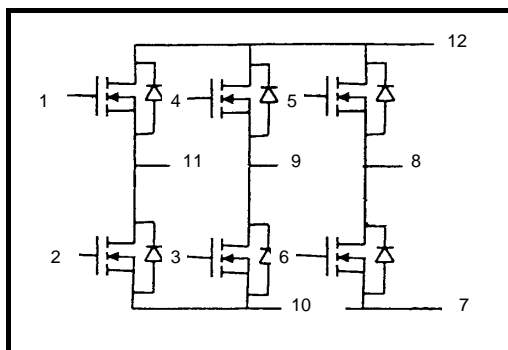
- Hermetically Sealed Case
- Dual In-Line Package
- 30 Ampere Output
- Low RDS(on)
- Fast Switching
- Hi-Rel Screening

### APPLICATIONS

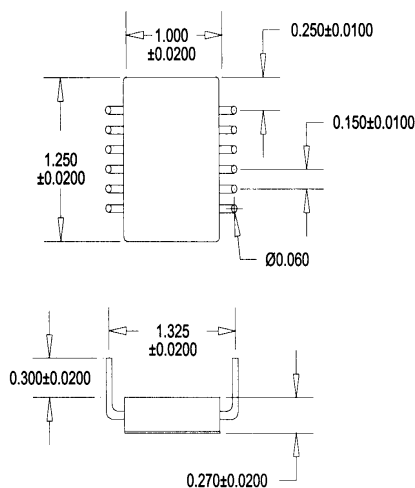
- High Reliability Power Supplies
- Switching Applications
- Motor Control
- Inverters

### DESCRIPTION

Semitronics SES838 is a 30 Amp, 200 Volt Three Phase Mosfet Bridge Assembly packaged in a 12 Pin, Dual In-Line Hermetically sealed case geared for Hi-Rel and Military Applications. Rugged Construction, Low on-state resistance and superior switching characteristics provide a high level of circuit performance. Included Military 883 screening assures a higher degree of reliability.



### Mechanical Dimensions



### ELECTRICAL CHARACTERISTICS

Parameter	Minimum	Maximum	Units
Continuous Drain Current $I_D$ @ $T_c = 25^\circ\text{C}$ , $V_{GS} @ 10\text{V}$		30	A
Continuous Drain Current $I_D$ @ $T_c = 100^\circ\text{C}$ , $V_{GS} @ 10\text{V}$		19	A
Pulse Drain Current $I_{DM}$ @ $T_c = 25^\circ\text{C}$		120.	A
Drain to Source Breakdown Voltage $V_{(BR)DSS}$ @ $T_j = 25^\circ\text{C}$ , $V_{GS} = 0\text{V}$ , $I_D = 250\mu\text{A}$	200		V
Gate-to-Source Voltage $V_{GS}$ @ $T_j = 25^\circ\text{C}$		±20	V
Gate-Source Threshold Voltage $V_{GS(th)}$ @ $T_j = 25^\circ\text{C}$ , $V_{DS} = V_{GS}$ , $I_D = 250\mu\text{A}$	2.0	4.0	V
Static Drain-to-Source On-Resistance $R_{DS(on)}$ @ $T_c = 25^\circ\text{C}$ , $V_{GS} = 10\text{V}$ , $I_D = 18\text{A}$		0.085	$\Omega$

## ELECTRICAL CHARACTERISTICS @ T<sub>j</sub> = 25°C (unless otherwise indicated)

Parameter	Min.	Typ.	Max.	Units	Conditions
Drain-to-Source Leakage Current I <sub>DSS</sub>	—	—	25	μA	V <sub>DS</sub> = 200V, V <sub>GS</sub> = 0V
	—	—	250		V <sub>DS</sub> = 160V, V <sub>GS</sub> = 0V, T <sub>j</sub> = 125°C
Gate-to-Source Forward Leakage I <sub>GSS</sub>	—	—	100	nA	V <sub>GS</sub> = 20V, T <sub>c</sub> = 25°C
Gate-to-Source Forward Leakage I <sub>GSS</sub>	—	—	-100		V <sub>GS</sub> = -20V, T <sub>c</sub> = 25°C
Turn-on-Delay Time t <sub>d(on)</sub>	—	16	—	ns	V <sub>DD</sub> = 100V V <sub>GS</sub> = 10V I <sub>D</sub> = 30A R <sub>G</sub> = 6.2 ohms
Rise Time t <sub>r</sub>	—	86	—		
Turn-Off-Delay Time t <sub>d(off)</sub>	—	70	—		
Fall time t <sub>f</sub>	—	62	—		
Input Capacitance C <sub>iss</sub>	—	2800	—	pF	V <sub>GS</sub> = 0V V <sub>DS</sub> = 25V f = 1.0 MHz
Output Capacitance C <sub>oss</sub>	—	780	—		
Reverse Transfer Capacitance C <sub>rss</sub>	—	250	—		
Thermal Resistance R <sub>θJC</sub>	—	—	0.75	°C/W	
Operating Junction Temperature T <sub>j</sub>	-55	—	150	°C	
Storage Junction Temperature T <sub>j</sub>	-55	—	150		

## Source-Drain Diode Ratings and Characteristics

Parameter	Min.	Typ.	Max.	Units	Conditions
Forward Voltage V <sub>SD</sub>	—	—	2.0	V	I <sub>S</sub> = 30A, V <sub>GS</sub> = 0V, T <sub>j</sub> = 25°C
Continuous Forward Current I <sub>S</sub>	—	—	30	A	T <sub>c</sub> = 25°C
Reverse Recovery Time t <sub>rr</sub>	—	360	540	ns	I <sub>F</sub> = 15A, T <sub>c</sub> = 25°C, di/dt = 100A/μs

## MIL-STD-883 Screening (Reference: MIL-PRF-38534, Revision C, Class H)

SCREEN	MIL-STD-883 METHOD	CONDITIONS
1 Internal Visual	2017	Condition B
2 Temperature Cycling	1010	Condition C
3 Constant Acceleration	2001	Condition A (min) Y1 orientation only
4 Pre burn in Electrical Parameters	—	Per device detailed specification
5 Burn-in	1015	160 Hours at 125°C minimum
6 Final Electrical Parameters	—	Per device detailed specification
7 PDA Calculation	—	10%
8 Fine & Gross Seal	1014	—
9 External Visual, Mechanical	2009	—

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