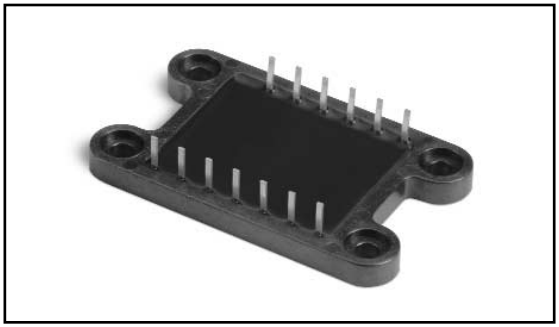
MODEL 7720 SERIES

Power Factor Correction Module



MODELS/RANGE

7720-1A	1,500 Watts / 3,000 Watts*
7720-2A	1,000 Watts / 2,250 Watts*
7720-3A	500 Watts / 1,500 Watts*

FEATURES AND BENEFITS

- Module contains all power components necessary to provide power factor correction in a switching power supply.
  - Rectifier bridge
  - Ultrafast platinum output diode
  - 500V .1Ω Max. FET (7720-1A)
- Provides optimum use of available line current
- Allows power supply to meet harmonic requirement
- Module design reduces cost of heat sink
- Saves significant space and assembly time
- Low cost
- Internal temperature sensing
- Replaces up to 10 each TO-220 or TO-247 discrete power semiconductors
- Custom module versions available to meet specific requirements such as:
  - Motor drives
  - Power servo amplifiers
  - Solenoid drivers
  - Solid state relays
  - 3 phase rectifier bridges

APPLICATIONS

Designed to optimally facilitate a boost type power factor correction (PFC) system for designs with up to 20 A rms input current.

Standard applications include switching power supplies from 500 watts to 3,000 watts with line voltages up to 300 V rms.

* Based on minimun line voltage of 84 V rms / 168 V rms.
Specifications subject to change without notice.

ELECTRICAL CHARACTERISTICS

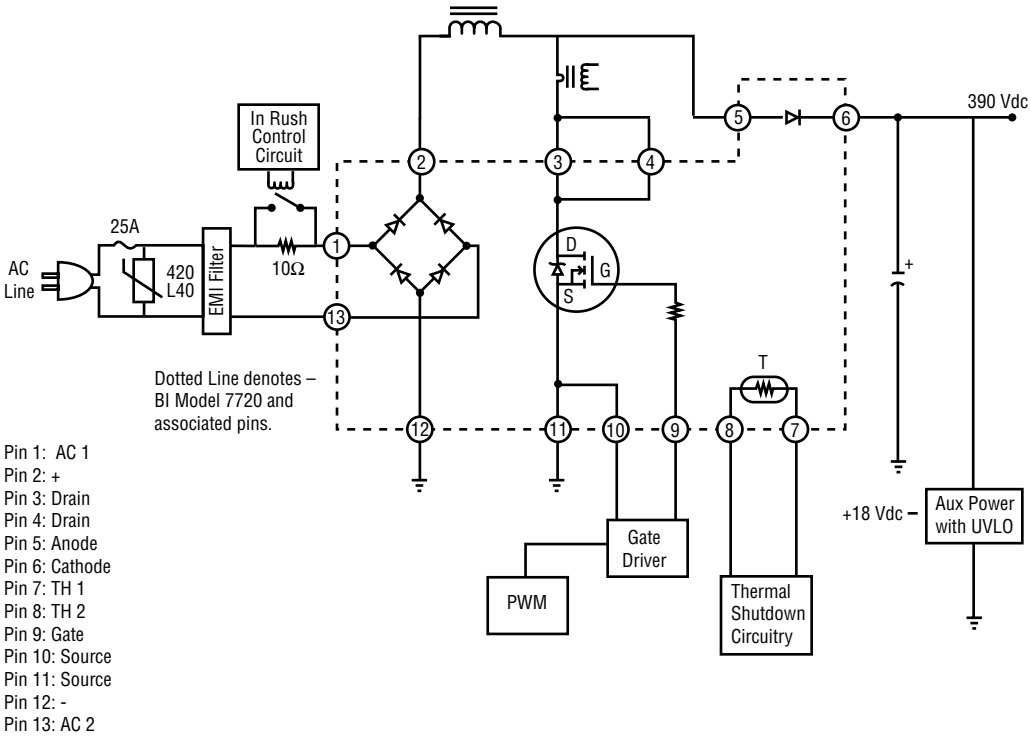
	Parameter	Symbol	Conditions[1]	7720-X	Min.	Typ.	Max.	Units
FET	Drain Leakage Current	I_{DSS}	V_{DS} = 500V, V_{GS} = 0V	-1			1.0	mA
				-2			750	µA
				-3			500	µA
	On-State Voltage	$V_{DS(on)}$	I_{DS} = 28A, V_{GS} = 10V	-1		2.2	2.9	V
			I_{DS} = 21A	-2		2.2	2.9	V
			I_{DS} = 14A	-3		2.2	2.9	V
	Threshold Voltage	$V_{GS(th)}$	V_{DS} = 4V, I_{DS} = 1mA	-1,-2,-3	2.0	3.0	4.0	V
	Gate Leakage Current	I_{GSS}	V_{GS} = ±15V, V_{DS} = 0V	-1			±2	µA
				-2			±1.5	µA
				-3			±1	µA
	Diode Forward Voltage	V_{SD}	I_{SD} = 50A, V_{GS} = 0V	-1		0.95	1.5	V
			I_{SD} = 37.5A	-2		0.95	1.5	V
			I_{SD} = 25A	-3		0.95	1.5	V
	Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 25V, f = 1.0MHz	-1		12		nF
				-2		9		nF
				-3		6		nF
	Gate Resistor	R_G		-1		1.28		Ω
				-2		1.70		Ω
				-3		2.55		Ω
	Junction Temperature	T_j		-1,-2,-3			150	°C
	Thermal Resistance	R_{thjc}		-1		0.19		°C/W
				-2		0.25		°C/W
				-3		0.38		°C/W
D1-D4	Reverse Leakage Current	I_R	V_R = 600V	-1,-2,-3		1	250	µA
	Forward Voltage	V_F	I_F = 25A	-1,-2		1.0	1.2	V
			I_F = 18A	-3		1.0	1.2	V
	Junction Temperature	T_j		-1,-2,-3			150	°C
	Thermal Resistance	R_{thjc}		-1,-2		1.3		°C/W
				-3		1.4		°C/W
D5	Forward Voltage	V_F	I_F = 25A	-1,-2		1.5	2.8	V
			I_F = 18A	-3		1.5	2.8	V
	Forward Voltage	V_F	I_F = 25A, t = 150°C	-1,-2		1.3	2.5	V
			I_F = 18A	-3		1.3	2.5	V
	Reverse Leakage Current	I_R	V_R = 600V	-1,-2,-3		1	500	µA
	Reverse Leakage Current	I_R	V_R = 600V, t = 150°C	-1,-2,-3		0.3	1.5	mA
	Reverse Recovery Time	t_{rr}	I_F = 1.0A, di/dt = 100A/µs	-1,-2,-3		30	40	ns
	Reverse Recovery Time	t_{rr}	I_F = 25A, di/dt = 100A/µs	-1,-2,-3		40	45	ns
	Junction Temperature	T_j		-1,-2,-3			175	°C
	Thermal Resistance	R_{thjc}		-1,-2		1.3		°C/W
				-3		1.4		°C/W
TH1	Resistance	R_{25}	I = 1mA		22.5	25	27.5	KΩ
	Resistance Ratio	R_T/R_{25}	t = 80			0.126		
			t = 90			0.0916		
			t = 100			0.0679		
			t = 110			0.0511		
	Dissipation Constant	P_D			1.0			mW/°C
	Thermal Time Constant	t					10	sec

1 - T_{Case} = 25°C unless otherwise specified.

ENVIRONMENTAL

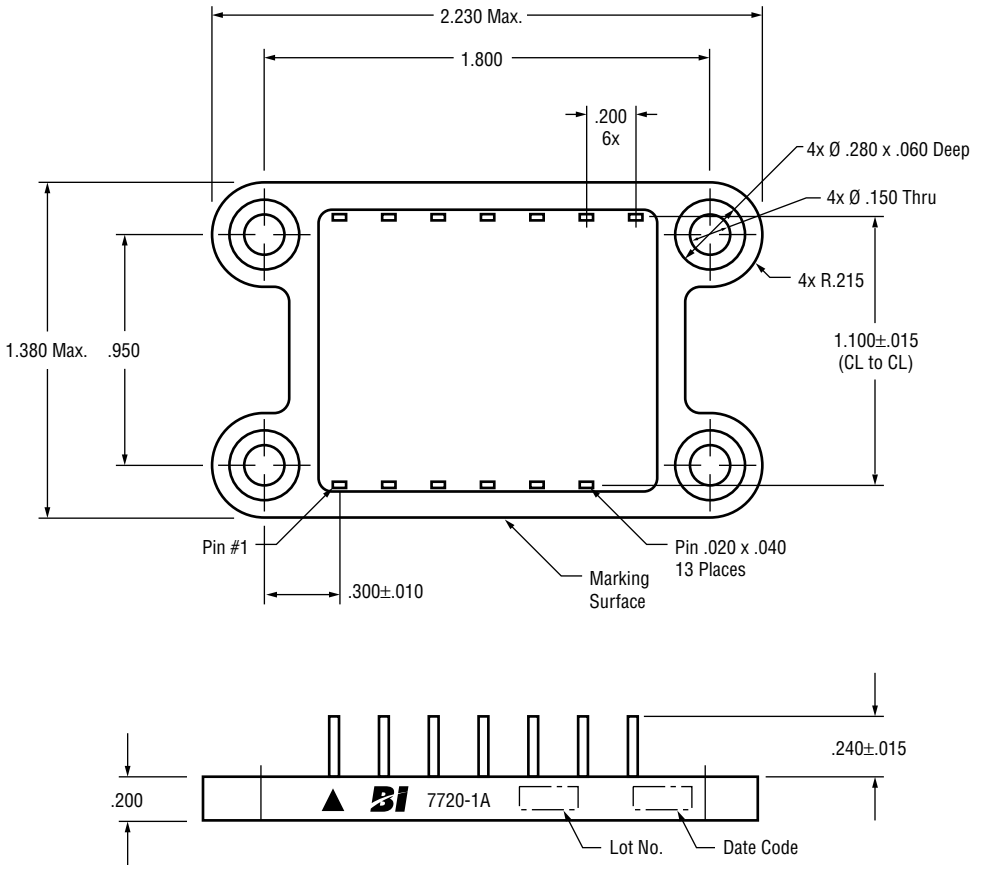
Storage Temperature Range	-55°C to +125°C
Operating Temperature Range	-40°C to +125°C
Recommended Operating Case Temperature, Max.	+100°C

SYSTEM DIAGRAM



7

OUTLINE DIMENSIONS (Inch)



ORDERING INFORMATION