

PART NUMBERS

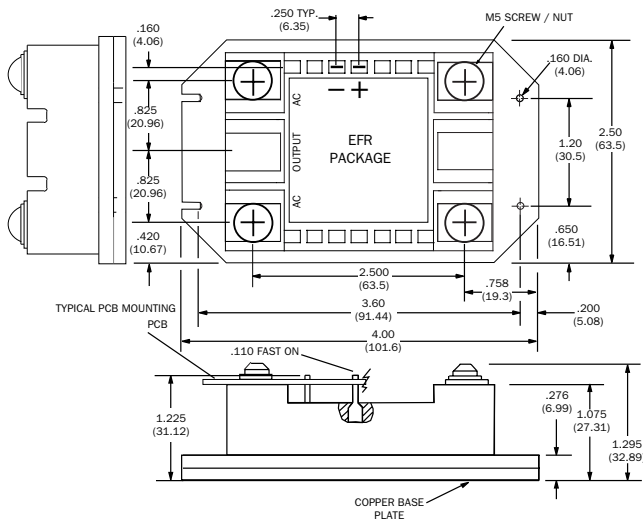
Package & Chip Type	Max Blocking Voltage (piv)/ Line Rating	Input Type	Output Current Amps	Options
EFR-SCR	1600660	D -DC Input	150	See Table
	1200480	Zero Cross		Below and
	600240	Switching		Page 58
		R -DC Input		
		Random		
		Turn-On		
		A -AC Input Zero		
		Cross-Switching		

Options (Add Suffix to Part Number) - See Page 58 for full description

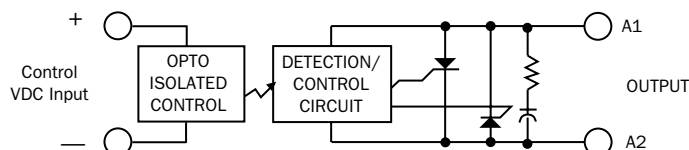
- 002** Control Status LED
- 012** EZ Mount™
- 022** 24 VAC Control
- 026** Non-Floating Output Terminals

Part Number Example: **EFR1200480D150**

MECHANICAL SPECIFICATION



BLOCK DIAGRAM



FEATURES/BENEFITS

- Highest rated Solid State Relay.
- High temperature plastic housing for exceptional mechanical ruggedness.
- Back-to-Back SCR's for high dv/dt, current and voltage ratings.
- Choice of Zero Cross and Random Turn-On versions.
- Constant Current Input minimizes source current requirement (standard on **D** and **A** inputs only)
- Constructed using Teledyne's unique Fused Copper™ process. This process yields superior thermal impedance and power cycling capabilities through reduced thermal interconnections, allowing for cooler, more reliable operation.
- The logic drive circuitry section uses the latest in reliable surface mount technology.
- Integral snubber circuit for additional transient immunity.
- Certifications:
 - UL and ULC Recognized File #E128555
 - CE # EN60947-1

TYPICAL APPLICATIONS

- On/Off and phase control of high power AC equipment.
- Interfacing of microprocessor controls to AC loads - lights, motors, heaters, valves, solenoids etc.
- Electromechanical line contractor replacement.
- Industrial and Process Controls.
- Uninterruptable Power Supplies.
- Robotics motor position and speed controls.
- Light dimmers.
- Transformer tap switch.
- Phase Proportional Drives

GENERAL DESCRIPTION

The EFR series AC Solid State Relays are designed to control very heavy loads. Optical isolation ensures complete protection of control elements from load transients. Teledyne's advanced design featuring the Fused Copper™ process offers users superior thermal management resulting in superior performance, quality and reliability.

ELECTRICAL SPECIFICATIONS

INPUT (CONTROL) SPECIFICATIONS

Parameter	Load Voltage/ Input Code	Min	Max	Units
Control Voltage Range	600240D	3	32	
	1200480D	3	32	
	1600660D	4.5	32	
	600240R	4	26	Vdc
	1200480R	4	26	
	1600660R	5	26	
	A	90	280	Vac
Input Current	D,R(@5Vdc)	15		mA
	A(@90Vac)	15		
Must Turn-Off Voltage	D,R	1		Vdc
	A	10		Vac
Reverse Voltage	D,R		-32	Vdc
Protection	A		N/A	
Turn-Off Current	D,R	0.25		mA(DC)
	A	2.5		mA(AC)

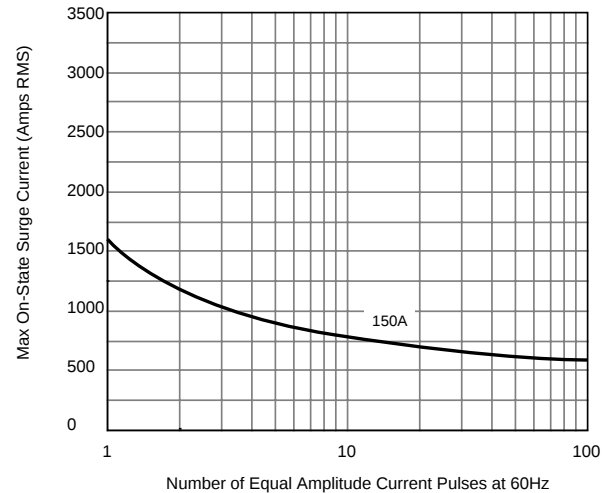
OUTPUT (LOAD) SPECIFICATION

Parameter	Voltage Code	Min	Max	Units
Load Voltage Rating	600240	24	280	Vac
	1200480	48	530	
	1600660	60	660	
Frequency Range (Note 2)		47	400	Hz
Over Voltage Range	600240		600	VPeak
	1200480		1200	
	1600660		1600	
On-State Voltage Drop @ Max Rate Current		1.7		V
Turn-On Time	D,A		8.3	ms
	R		0.02	ms
Turn-Off Time			8.3	ms
Leakage Current (Off-State) @25 °C			5	mA
dV/dt (Typical)			500	V/μs
Isolation (All Terminals To Heatsink) = VRMS For 1 Min With Unit Mounted Properly			4000	V
Operating Temperature		-40	125	°C
Power Factor Range		0.5	1.0	

OUTPUT (LOAD) SPECIFICATIONS (Contd)

Parameter	Output Current	Min	Max	Units
Output Current Rating (Load Current @85°C)	150	0.05	150	A
Surge Current Rating See Fig 1 (Non- Repetitive 16.7 mS)	150		1600	A
Thermal Resistance Junction to Case (J _c)	150		0.25	°C/W

FIGURE 1 Max Non-Repetitive Surge Current



NOTES:

- 1.) Where overvoltage transient spikes are present, suppression may be required. A suppressor and/or a snubber circuit across the AC terminals of the module will provide additional transient immunity.
- 2.) For 400 Hz inductive load, contact factory.