

## Darrah IGBT Assemblies

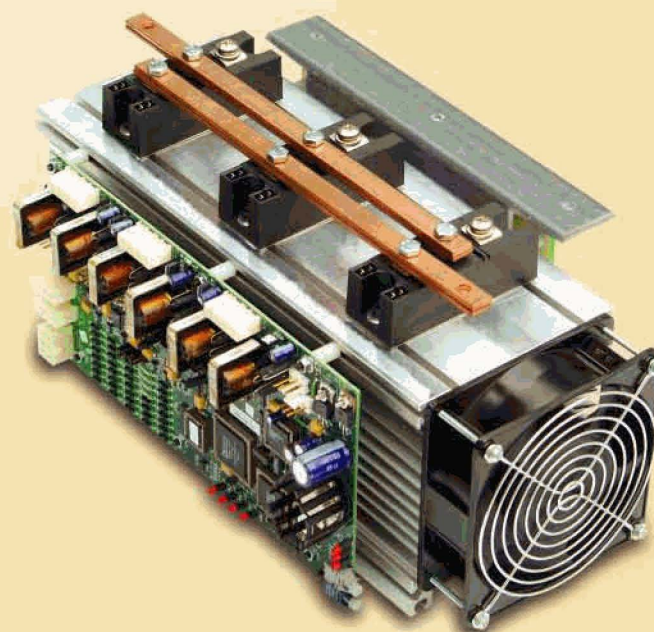
In addition to Darrah's vast array of Power Rectifier Assemblies we compliment our total Power Conversion capabilities with our IGBT Power Assemblies. These IGBT Assemblies can be configured to meet all standard applications as well as any custom requirements our customers may have. As with all Darrah products we pride ourselves in our timely "concept to finished product" development process. Our IGBT Assemblies can be either Air or Liquid Cooled to meet your specific needs.

### Typical Applications for Darrah IGBT Assemblies include:

- Power Quality
- Motor Drives
- Energy Storage
- Distributed Generation

### Common Circuit Configurations are:

- H-Bridge
- Half Bridge
- Converter-Inverter
- Chopper
- Buck/Boost

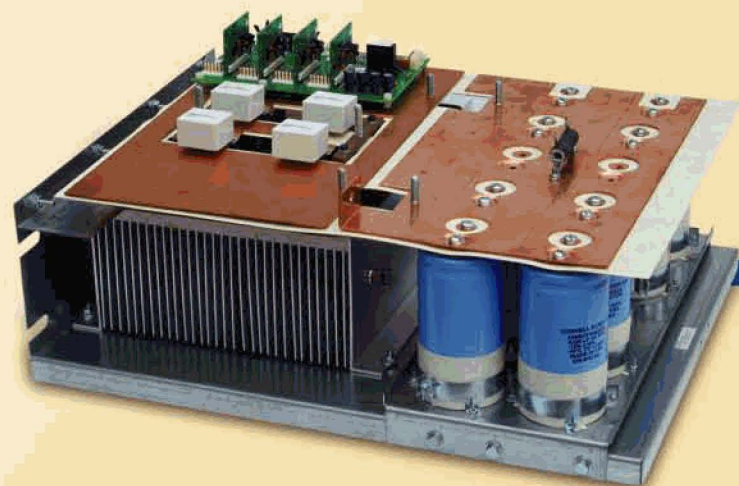


## Custom Configurations

Custom Configurations are also available. For more information contact Darrah Electric.

### Custom Configurations Features include:

- Rugged Design
- Compact Footprint
- Laminated bus
- Snubbers
- Transient Suppression
- Current Sensing
- Filtering



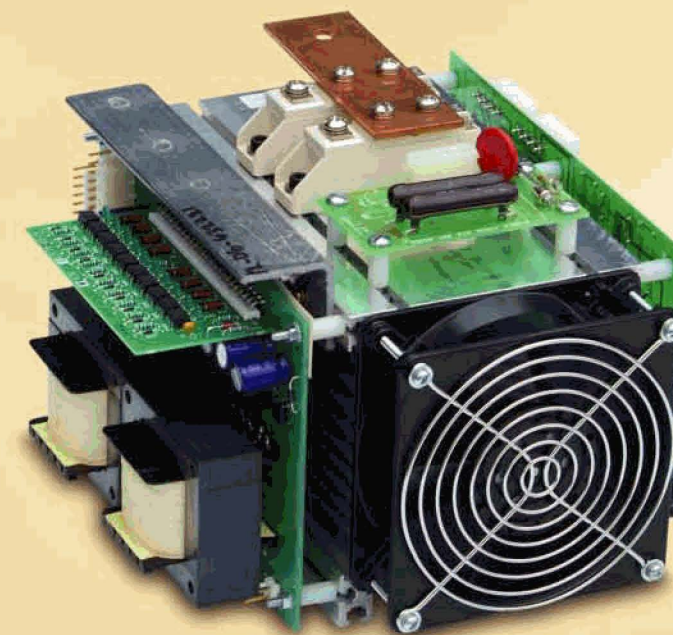
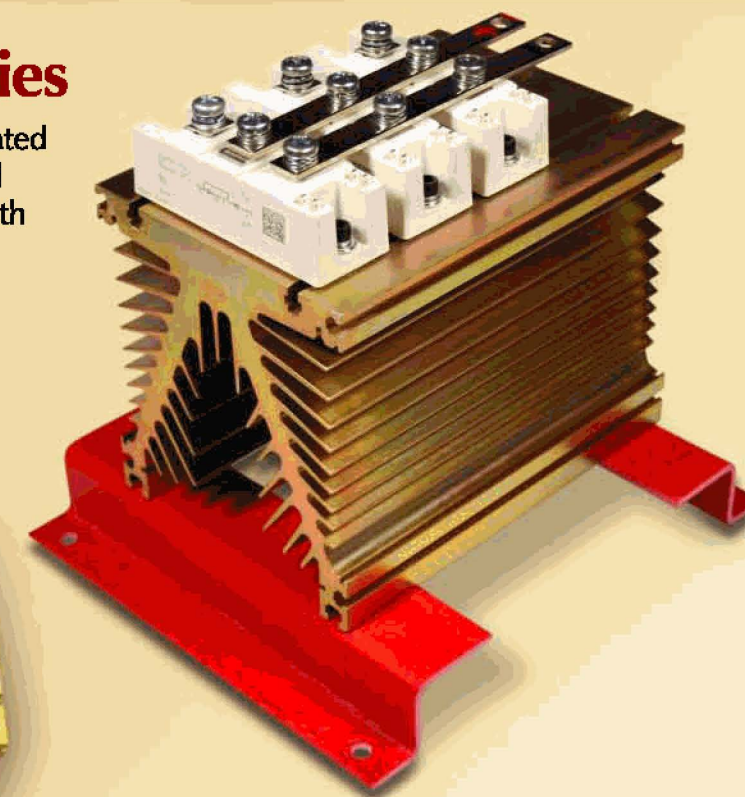
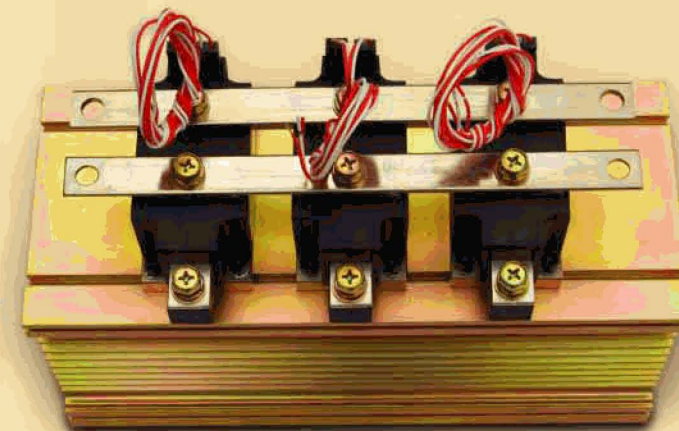
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# DARRAH's Air Cooled Module Assemblies



## Darrah Rectifier Assemblies

Darrah Electric provides a complete range of Isolated Module Heatsink Assemblies to cover all standard voltages, currents and physical applications, in both single and three phase circuits utilizing Diodes, Thyristors, IGBT's or combinations.



### Complete Turn Key Solutions

All thermal, mechanical, and electrical drawings are provided

### Cost Savings

Competitively priced, typical lead time – stock to 4 weeks

### Diode/SCR Thyristor Circuits

### IGBT Converter/ Inverter Assemblies



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# Air Cooled Module Assemblies

## Darrah Part Number Designation Code

Use Darrah's simple part number designation code to order or request common SCR or Diode Assemblies. Thermal calculations and mechanical drawings are available.

**D** Darrah Module Assembly

**T** A = A.C. Switch  
R = Rectifier / Diode Circuit  
T = Thyristor / SCR Circuit  
H = Hybrid Circuit

**C18** Heat Sink Length  
C12 = 4.72" 120mm  
C18 = 7.09" 180mm  
C30 = 11.81" 300mm

**130F** Average Ampere Rating of the Assembly  
F = Forced Air Cooling  
No Letter = Natural Cooling

**120** Device Voltage Rating  
40= 400 Volt 120= 1200 Volt  
60= 600 Volt 140= 1400 Volt  
80= 800 Volt 160= 1600 Volt  
100= 1000 Volt

**B** Special Features  
B = Mounting Rails  
M = MOV  
R = R/C Snubber  
T = Thermostat  
C = Free-Wheeling Diode  
A = Special  
E = 230 Volt Fan

**S** = Single Phase Circuit  
**T** = Three Phase Circuit

## Common SCR and Diode Circuits



## Diode/Rectifier Circuits

Circuit Schematic	Circuit Type	ID Amp Rating	Darrah Part Number	Fan
	Single-Phase Bridge	50	DSR C18 50 --	No
		65	DSR C18 65 --	No
		95F	DSR C18 95F --	Yes
		130F	DSR C18 130F --	Yes
	Three-Phase Bridge	65	DTR C18 65 --	No
		85	DTR C18 85 --	No
		122F	DTR C18 122F --	Yes
		175F	DTR C18 175F --	Yes
		290F	DTR C18 290F --	Yes

--Indicates device voltage rating

## Thyristor/SCR Circuits

Circuit Schematic	Circuit Type	I RMS Rating	Darrah Part Number	Fan
	AC Switch Single-Phase	40	DSA C18 40 --	No
		50	DSA C18 50 --	No
		70	DSA C18 70 --	No
		80	DSA C18 80 --	No
		110	DSA C18 110 --	No
		130F	DSA C18 130F --	Yes
	Three-Phase Bridge	55	DTA C18 55 --	No
		60F	DTA C18 60F --	Yes
		65	DTA C18 65 --	No
		85F	DTA C18 85F --	Yes
		100F	DTA C18 100F --	Yes
		115F	DTA C18 115F --	Yes
		135F	DTA C18 135F --	Yes
		160F	DTA C18 160F --	Yes

--Indicates device voltage rating

## Thyristor/SCR Circuits

Circuit Schematic	Circuit Type	ID Amp Rating	Darrah Part Number	Fan
	Full SCR Bridge Single Phase	35	DST C18 35 --	No
		50	DST C18 50 --	No
		59	DST C18 59 --	No
		60F	DST C18 60F --	Yes
		64	DST C18 64 --	No
		72	DST C18 72 --	No
		85F	DST C18 85F --	Yes
		100F	DST C18 100F --	Yes
		117F	DST C18 117F --	Yes
		140F	DST C18 140F --	Yes
170F	DST C18 170F --	Yes		
	Full SCR AC Switch Three-Phase	47	DTT C18 47 --	No
		60	DTT C18 60 --	No
		70	DTT C18 70 --	No
		75	DTT C18 75 --	No
		77F	DTT C18 77F --	Yes
		85	DTT C18 85 --	No
		110F	DTT C18 110F --	Yes
		130F	DTT C18 130F --	Yes
		146F	DTT C18 146F --	Yes
		175F	DTT C18 175F --	Yes
205F	DTT C18 205F --	Yes		
240F	DTT C18 240F --	Yes		
255F	DTT C18 255F --	Yes		

--Indicates device voltage rating

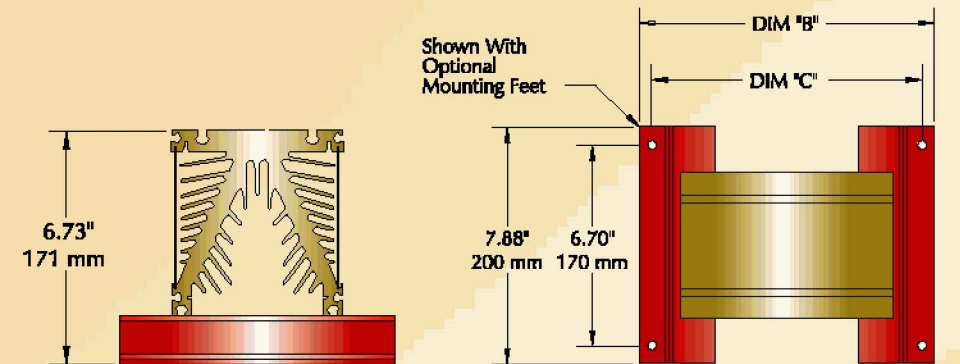
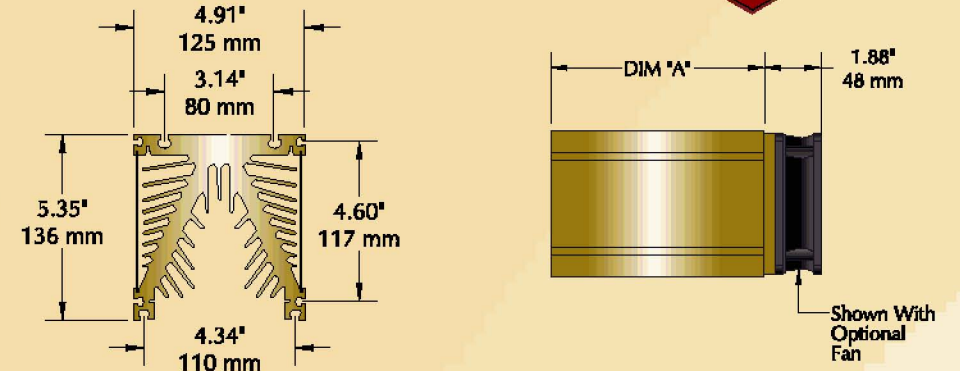
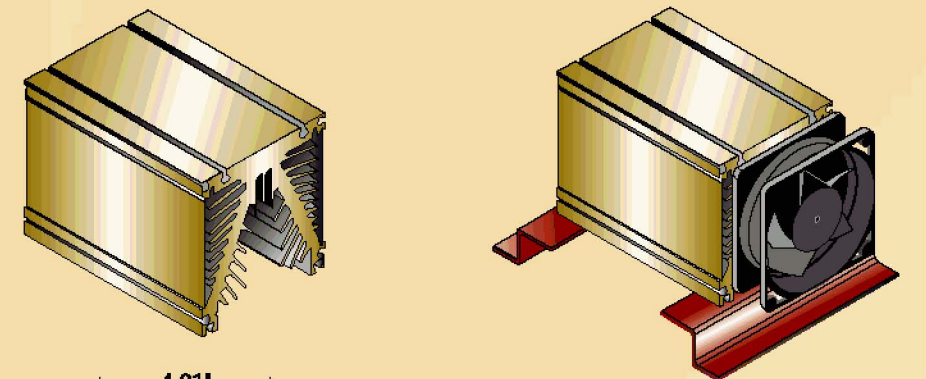
## Hybrid Circuits Diodes/SCR

Circuit Schematic	Circuit Type	ID Amp Rating	Darrah Part Number	Fan
	Single-Phase Hybrid Bridge Common Cathode SCR's	38	DSH C18 38 --	No
		48	DSH C18 48 --	No
		60	DSH C18 60 --	No
		72	DSH C18 72 --	No
		100F	DSH C18 100F --	Yes
		117F	DSH C18 117F --	Yes
		140F	DSH C18 140F --	Yes
		140F	DSH C18 140F --	Yes
	Three-Phase Hybrid Bridge Common Cathode SCR's	47	DTH C18 47 --	No
		60	DTH C18 60 --	No
		70	DTH C18 70 --	No
		75	DTH C18 75 --	No
		85	DTH C18 85 --	No
		110F	DTH C18 110F --	Yes
		146F	DTH C18 146F --	Yes
		175F	DTH C18 175F --	Yes

--Indicates device voltage rating

## Standard Features Include:

- R/C snubber circuits
- Transient voltage suppression
- Thermostats and/or RTD's
- Fans or blowers, all common AC or DC voltages
- Copper bus bars – nickel or tin plated
- Insulated Mounting rails



Extrusion Details	Extrusion	DIM "A"	DIM "B"	DIM "C"
Perimeter - 91.34	C12	4.72 - 120mm	7.41 - 188mm	6.63 - 168mm
Wt - 12.18 lb/ft	C18	7.09 - 180mm	9.78 - 248mm	9.00 - 229mm
Rt <sub>hsa</sub> - 0.83 Deg C/Watt/3"	C30	11.81 - 300mm	14.5 - 368mm	13.72 - 348mm

If optional fan is included, add 1.88" - 48mm to Dim "A"

## Thermal Resistance of Module Heatsinks

	Modules On Sink*	C12 (120mm)	C18 (180mm)	C30 (300mm)
		TH. RES.	TH. RES.	TH. RES.
Natural Convection 50°C Rise	One	0.64	0.52	0.40
	Two	0.58	0.48	0.38
	Three	0.53	0.43	0.37
Forced Convection One 100CFM Fan with Baffles	One	0.14	0.12	0.10
	Two	0.13	0.11	0.09
	Three	0.12	0.10	0.08

\*The module widths used: C12 - 21mm, C18 - 35mm, C30 - 50mm  
Example: One 50mm Module on C12 is equivalent to Two 21mm Modules, ETC.

