



March 1999
Supersedes Application Data 32-880
dated February 1999

Types DSII and DSLII Circuit Breakers with Digitrip OPTIM 750 and 1050 Trip Units

This envelope contains the following time-current curves:

Curve Description	Curve Number
Typical Long Delay I²t, Short Delay I²t Time-Phase Current Characteristic Curve based on I_r , for Types DSII and DSLII Circuit Breakers rated up to 1200A (blue) .	SC-6275-95C
Typical Long Delay I²t, Short Flat Time-Phase Current Characteristic Curve based on I_r , for Types DSII and DSLII Circuit Breakers rated up to 1200A (blue) .	SC-6276-95C
Typical Long Delay I⁴t, Short Flat Time-Phase Current Characteristic Curve based on I_r , for Types DSII and DSLII Circuit Breakers rated up to 1200A (blue) .	SC-6277-95C
Typical Long Delay I²t, Short Delay I²t Time-Phase Current Characteristic Curve based on I_r , for Types DSII and DSLII Circuit Breakers rated 1600A to 5000A (blue) .	SC-6278-95C
Typical Long Delay I²t, Short Flat Time-Phase Current Characteristic Curve based on I_r , for Types DSII and DSLII Circuit Breakers rated 1600A to 5000A (blue) .	SC-6279-95C
Typical Long Delay I⁴t, Short Flat Time-Phase Current Characteristic Curve based on I_r , for Types DSII and DSLII Circuit Breakers rated 1600A to 5000A (blue) .	SC-6280-95C
Typical Instantaneous Time-Phase Current Characteristic Curve based on I_n , for Types DSII and DSLII Circuit Breakers rated up to 1200A (white) .	SC-6281-96A
Typical Instantaneous Time-Phase Current Characteristic Curve based on I_n , for Types DSII and DSLII Circuit Breakers rated 1600A to 5000A (white) .	SC-6282-96A
Typical Ground Fault (Trip or Alarm Only) Time-Phase Current Characteristic Curve based on I_n , for Types DSII and DSLII Circuit Breakers. (white) .	SC-6283-96A

Refer to Application Data 36-783 for the DSLII Limiter Time-Current Characteristic Curves.

Definitions

I_n is the maximum value of continuous current for which the trip unit can be set.

I_n is the basis (or reference) for both the Instantaneous and the Ground protection current settings (white paper for these curves).

The value of **I_n** is printed on the Rating Plug.

I_r is the basis for both the Long Delay and Short Delay (if provided) protection current settings (blue paper for these curves).

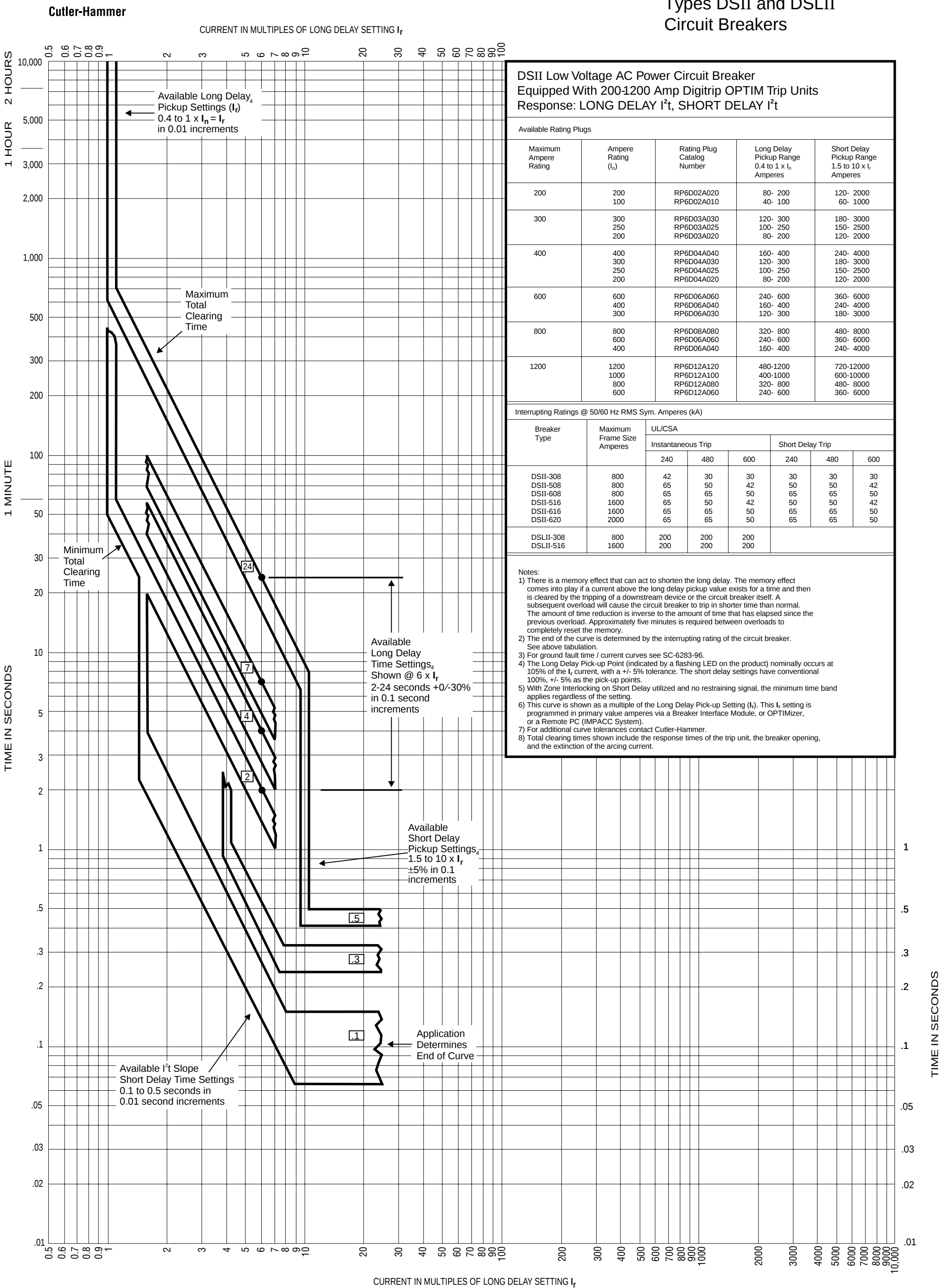
The value of **I_r** is the Long Delay Current Setting x **I_n**.

Standard Ratings (60 Hz)

Breaker Type	Frame Rating Amperes	Interrupting Capacity, RMS Symmetrical Amperes (kA) with Instantaneous Trip		
		240V	480V	600V
DSII				
308	800A	42,000	30,000	30,000
508	800A	65,000	50,000	42,000
608	800A	65,000	65,000	50,000
516	1600A	65,000	50,000	42,000
616	1600A	65,000	65,000	50,000
620	2000A	65,000	65,000	50,000
632	3200A	85,000	65,000	65,000
840	4000A	130,000	85,000	85,000
850	5000A	130,000	85,000	85,000

Types DSLII (308, 516, 620, 632 and 840) 200kA, 600 Vac Max.

Application Data 32 - 880 Characteristic Curves for Types DSII and DSLII Circuit Breakers



Cutler-Hammer

DSII Low Voltage AC Power Circuit Breaker
Equipped With 200-1200 Amp Digitrip OPTIM Trip Units
Response: LONG DELAY I²t, SHORT DELAY I²t

Available Rating Plugs				
Maximum Ampere Rating	Ampere Rating (I _n)	Rating Plug Catalog Number	Long Delay Pickup Range 0.4 to 1 x I _n Amperes	Short Delay Pickup Range 1.5 to 10 x I _n Amperes
200	200 100	RP6D02A020 RP6D02A010	80- 200 40- 100	120- 2000 60- 1000
300	300 250 200	RP6D03A030 RP6D03A025 RP6D03A020	120- 300 100- 250 80- 200	180- 3000 150- 2500 120- 2000
400	400 300 250 200	RP6D04A040 RP6D04A030 RP6D04A025 RP6D04A020	160- 400 120- 300 100- 250 80- 200	240- 4000 180- 3000 150- 2500 120- 2000
600	600 400 300	RP6D06A060 RP6D06A040 RP6D06A030	240- 600 160- 400 120- 300	360- 6000 240- 4000 180- 3000
800	800 600 400	RP6D08A080 RP6D06A060 RP6D06A040	320- 800 240- 600 160- 400	480- 8000 360- 6000 240- 4000
1200	1200 1000 800 600	RP6D12A120 RP6D12A100 RP6D12A080 RP6D12A060	480-1200 400-1000 320- 800 240- 600	720-12000 600-10000 480- 8000 360- 6000

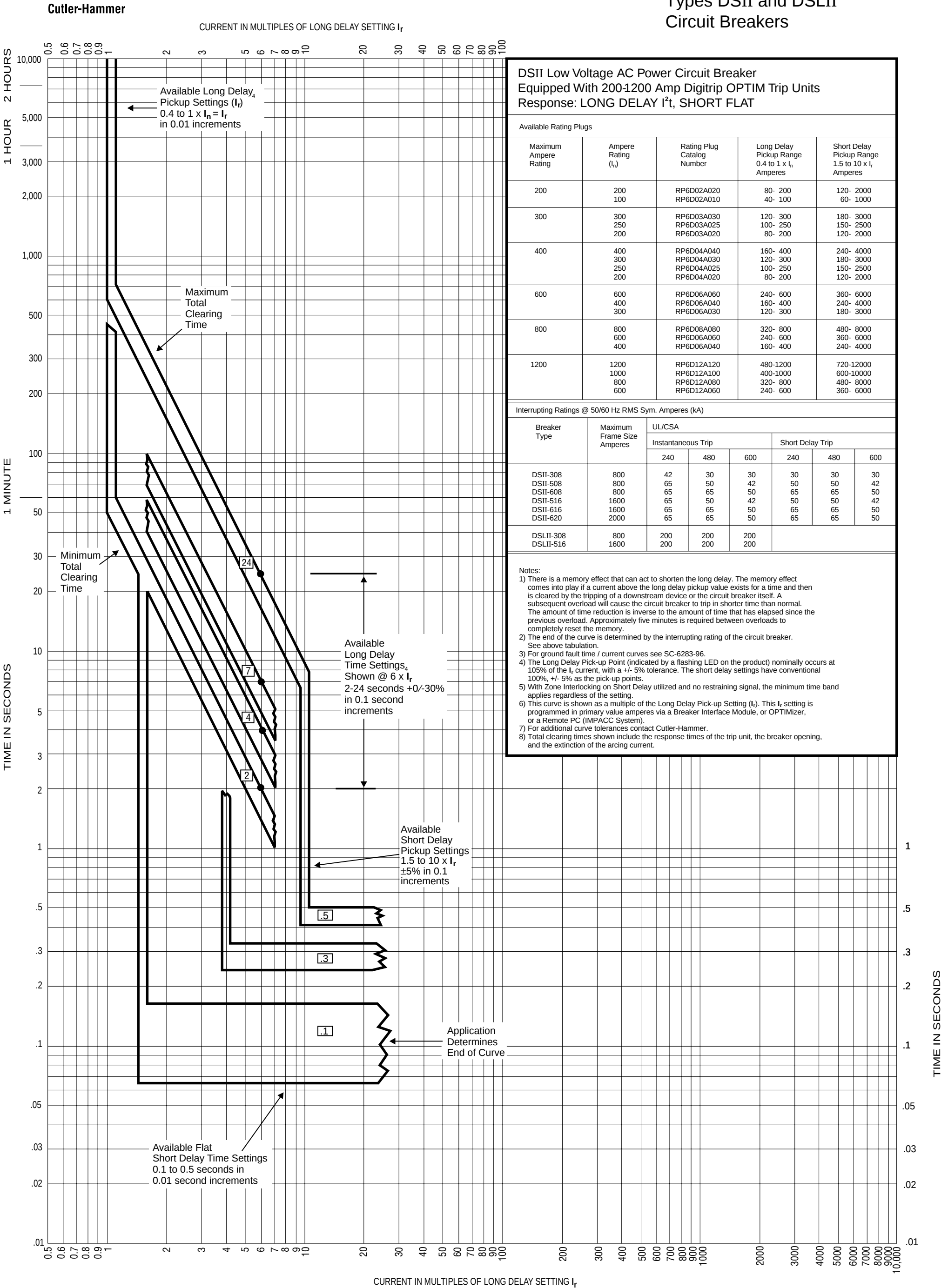
Interrupting Ratings @ 50/60 Hz RMS Sym. Amperes (kA)							
Breaker Type	Maximum Frame Size Amperes	UL/CSA					
		Instantaneous Trip			Short Delay Trip		
		240	480	600	240	480	600
DSII-308	800	42	30	30	30	30	30
DSII-508	800	65	50	42	50	50	42
DSII-608	800	65	65	50	65	65	50
DSII-516	1600	65	50	42	50	50	42
DSII-616	1600	65	65	50	65	65	50
DSII-620	2000	65	65	50	65	65	50
DSLII-308	800	200	200	200			
DSLII-516	1600	200	200	200			

- Notes:
- 1) There is a memory effect that can act to shorten the long delay. The memory effect comes into play if a current above the long delay pickup value exists for a time and then is cleared by the tripping of a downstream device or the circuit breaker itself. A subsequent overload will cause the circuit breaker to trip in shorter time than normal. The amount of time reduction is inverse to the amount of time that has elapsed since the previous overload. Approximately five minutes is required between overloads to completely reset the memory.
- 2) The end of the curve is determined by the interrupting rating of the circuit breaker. See above tabulation.
- 3) For ground fault time / current curves see SC-6283-96.
- 4) The Long Delay Pick-up Point (indicated by a flashing LED on the product) nominally occurs at 105% of the I_L current, with a +/- 5% tolerance. The short delay settings have conventional 100%, +/- 5% as the pick-up points.
- 5) With Zone Interlocking on Short Delay utilized and no restraining signal, the minimum time band applies regardless of the setting.
- 6) This curve is shown as a multiple of the Long Delay Pick-up Setting (I_L). This I_L setting is programmed in primary value amperes via a Breaker Interface Module, or OPTIMizer, or a Remote PC (IMPACC System).
- 7) For additional curve tolerances contact Cutler-Hammer.
- 8) Total clearing times shown include the response times of the trip unit, the breaker opening, and the extinction of the arcing current.

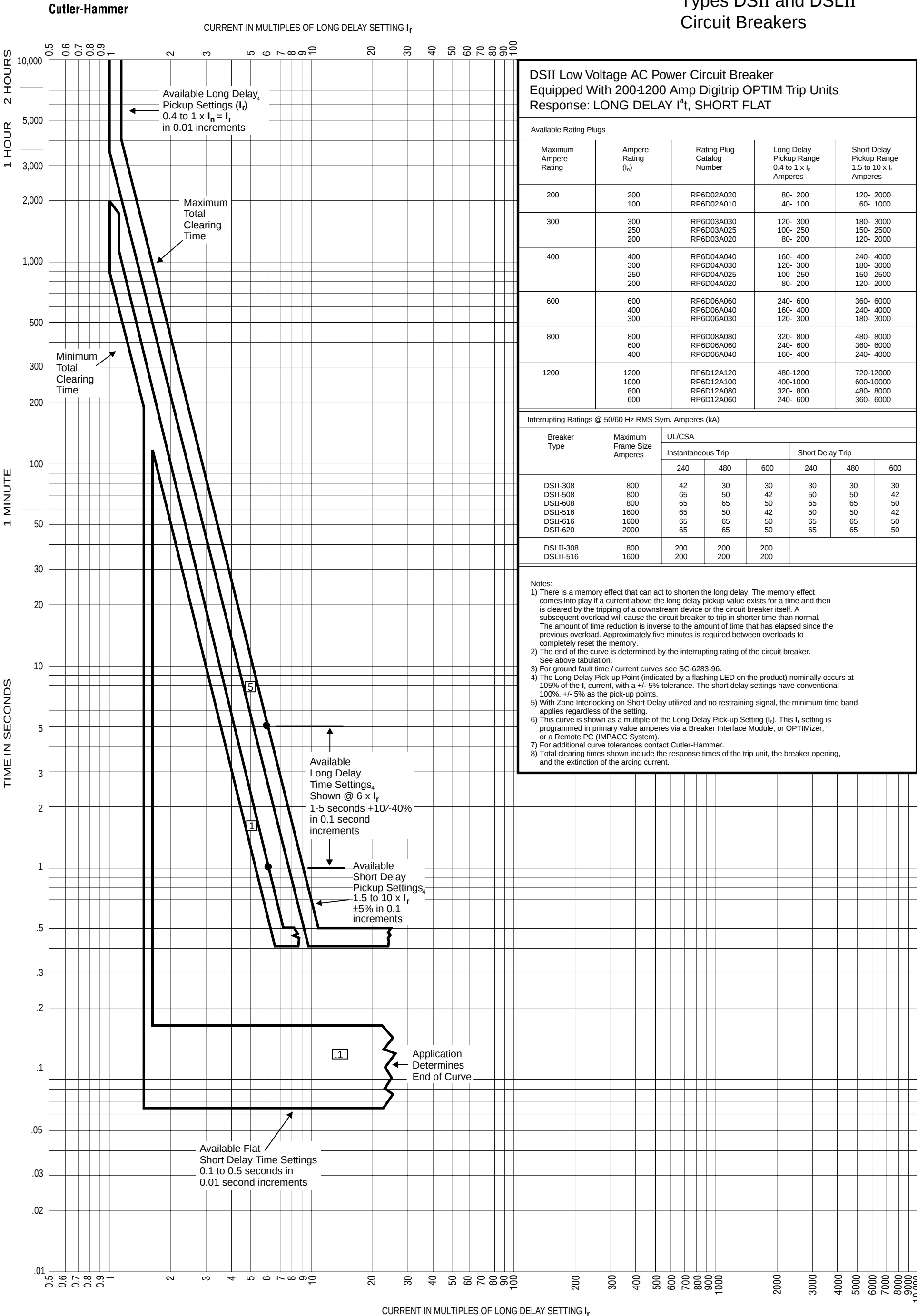


Curve No. SC-6275-95C
Dwg. No. 1C97334
Printed in U. S. A. March 1999

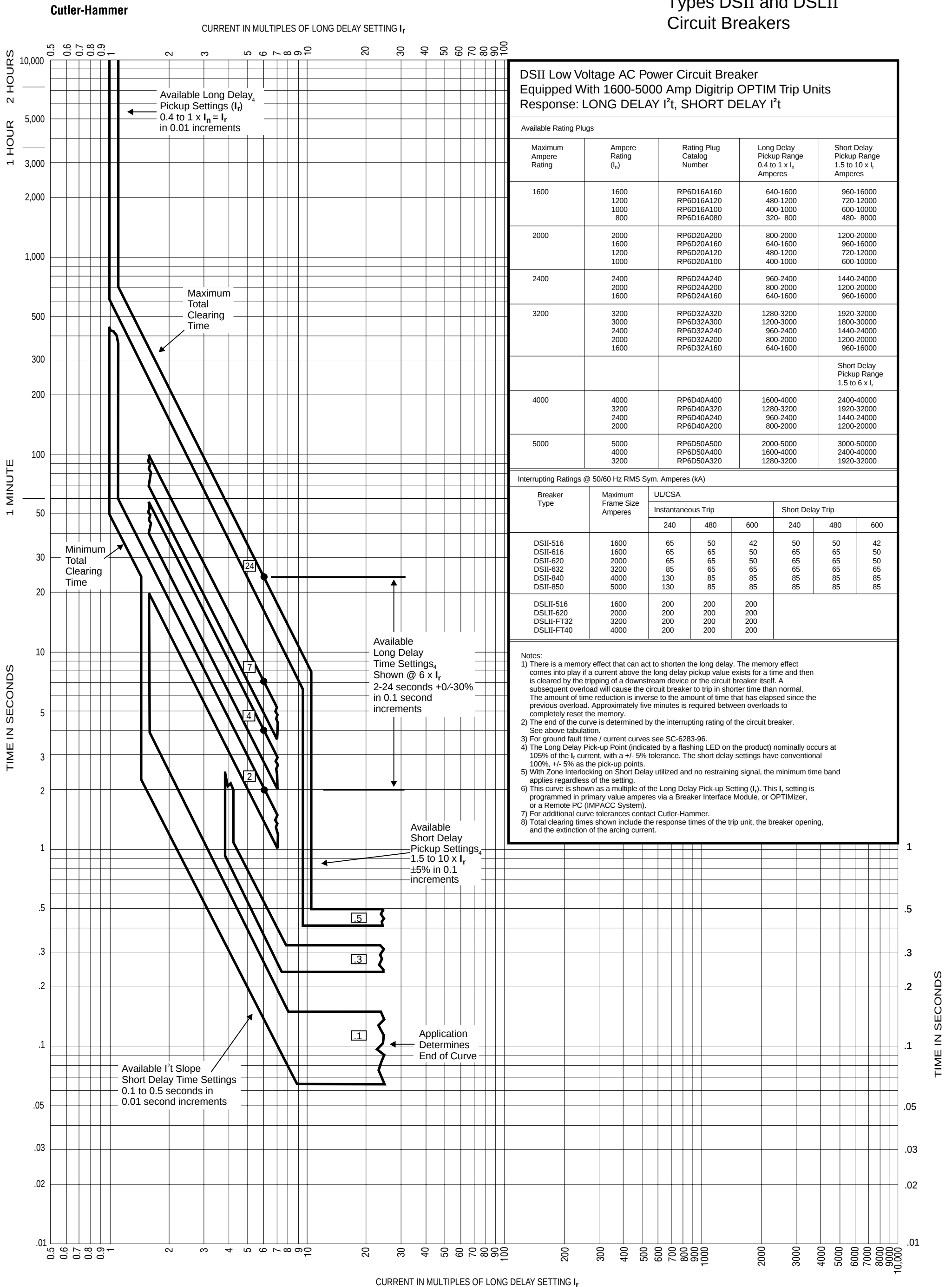
Application Data 32 - 880
Characteristic Curves for
Types DSII and DSLII
Circuit Breakers



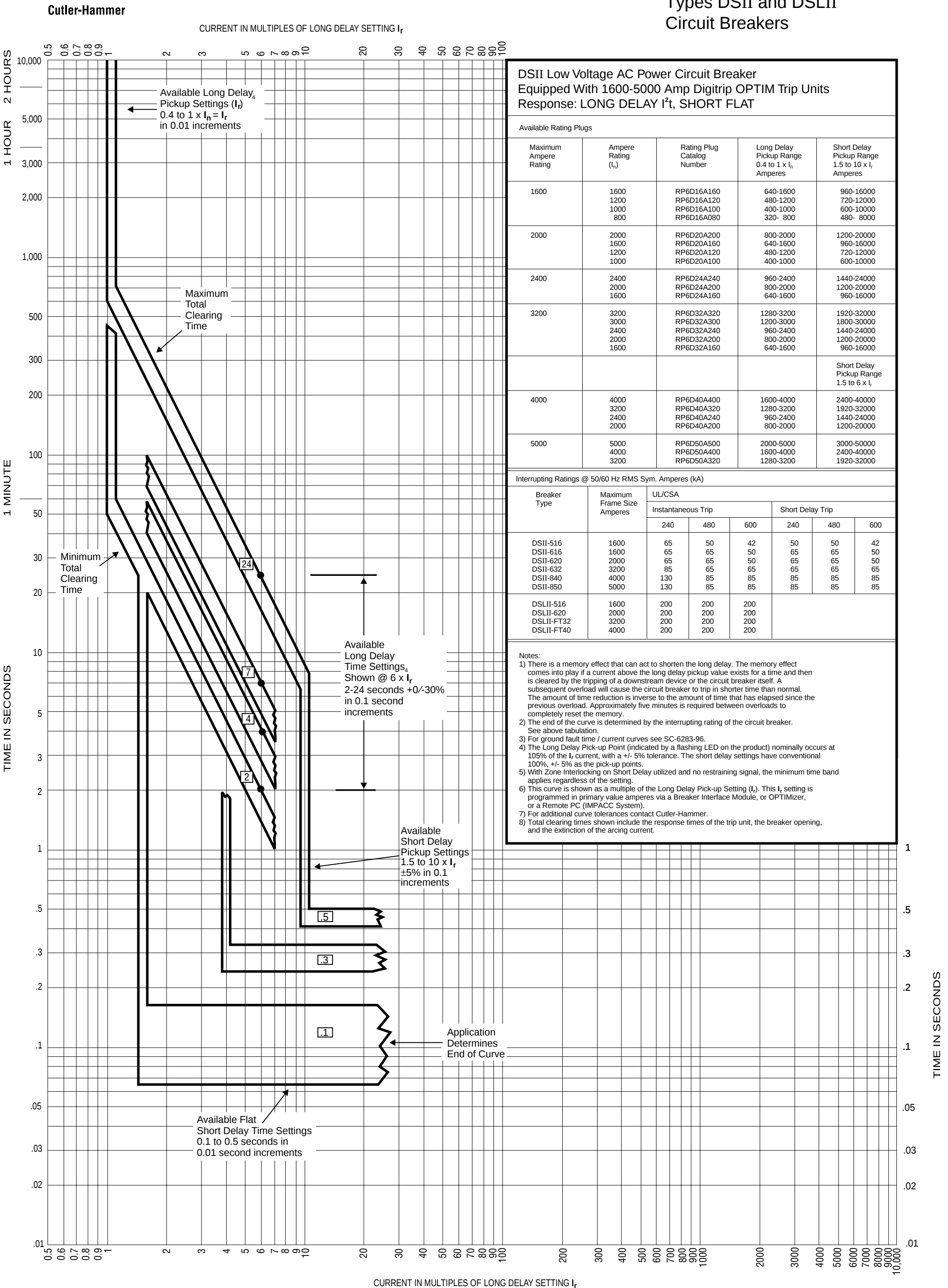
Application Data 32 - 880
Characteristic Curves for
Types DSII and DSLII
Circuit Breakers



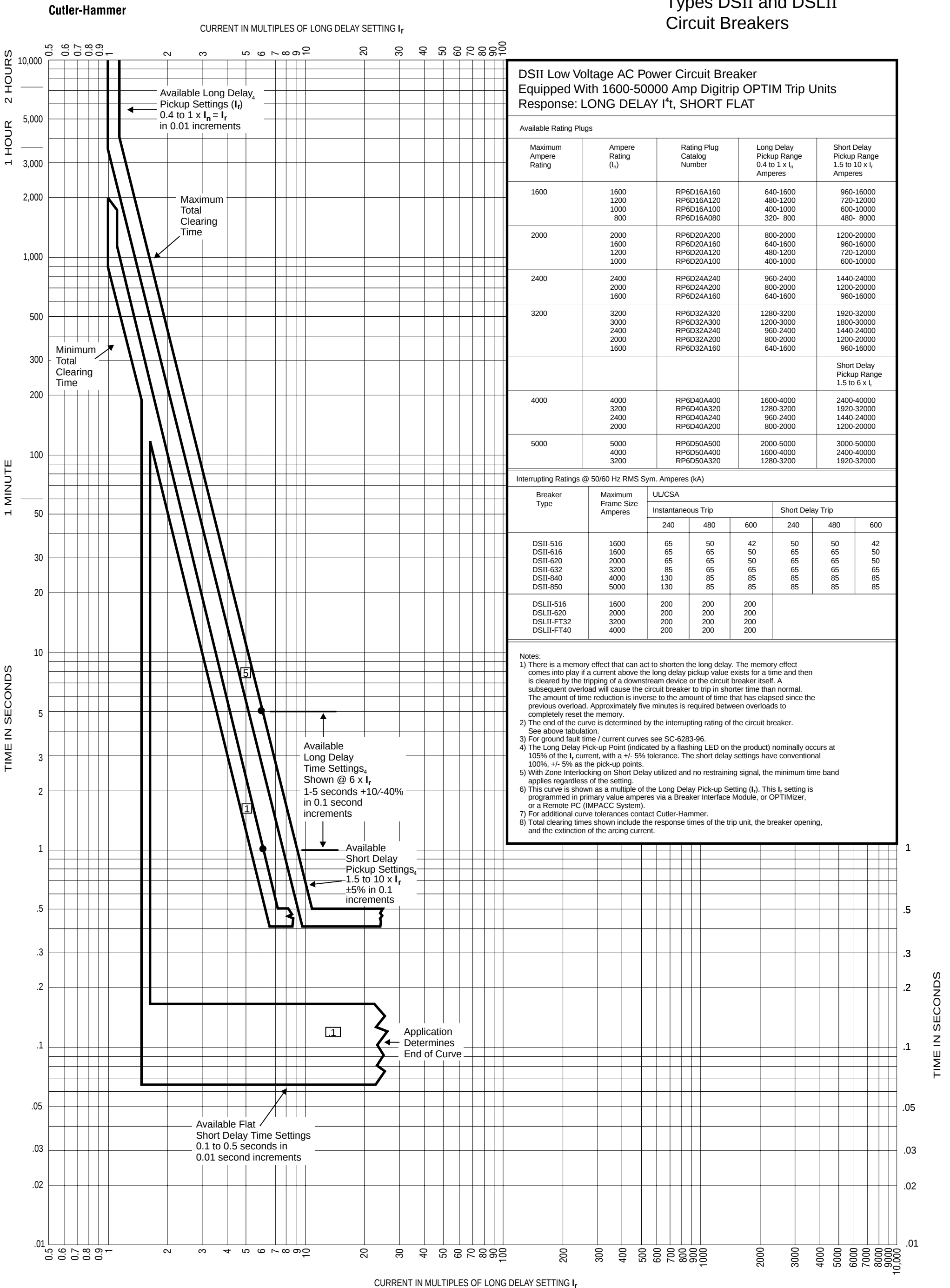
Application Data 32 - 880 Characteristic Curves for Types DSII and DSLII Circuit Breakers



Application Data 32 - 880 Characteristic Curves for Types DSII and DSLII Circuit Breakers



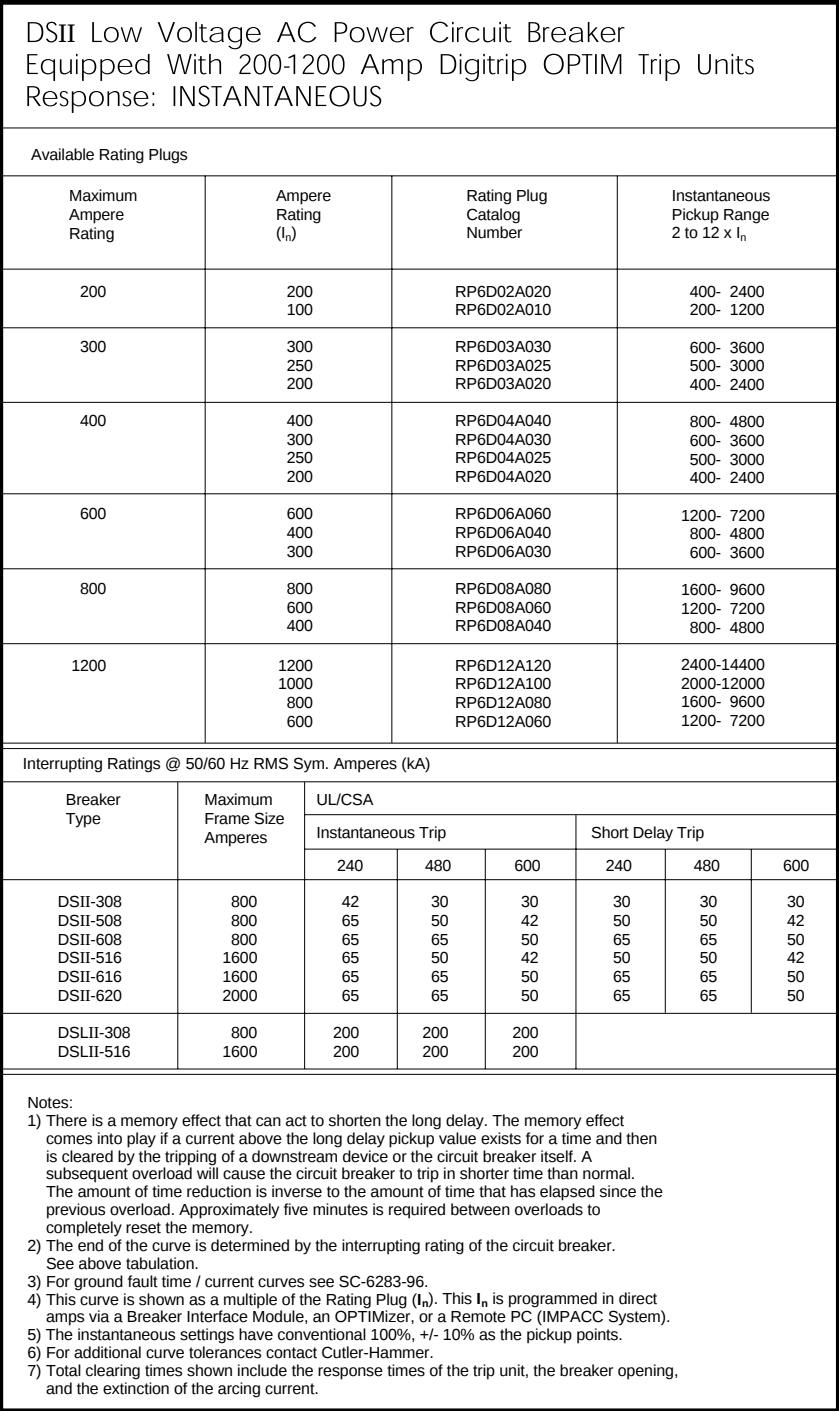
Application Data 32 - 880 Characteristic Curves for Types DSII and DSLII Circuit Breakers



Curve No. SC-6280-95C
Dwg. No. 1C97345
Printed in U. S. A. March 1999

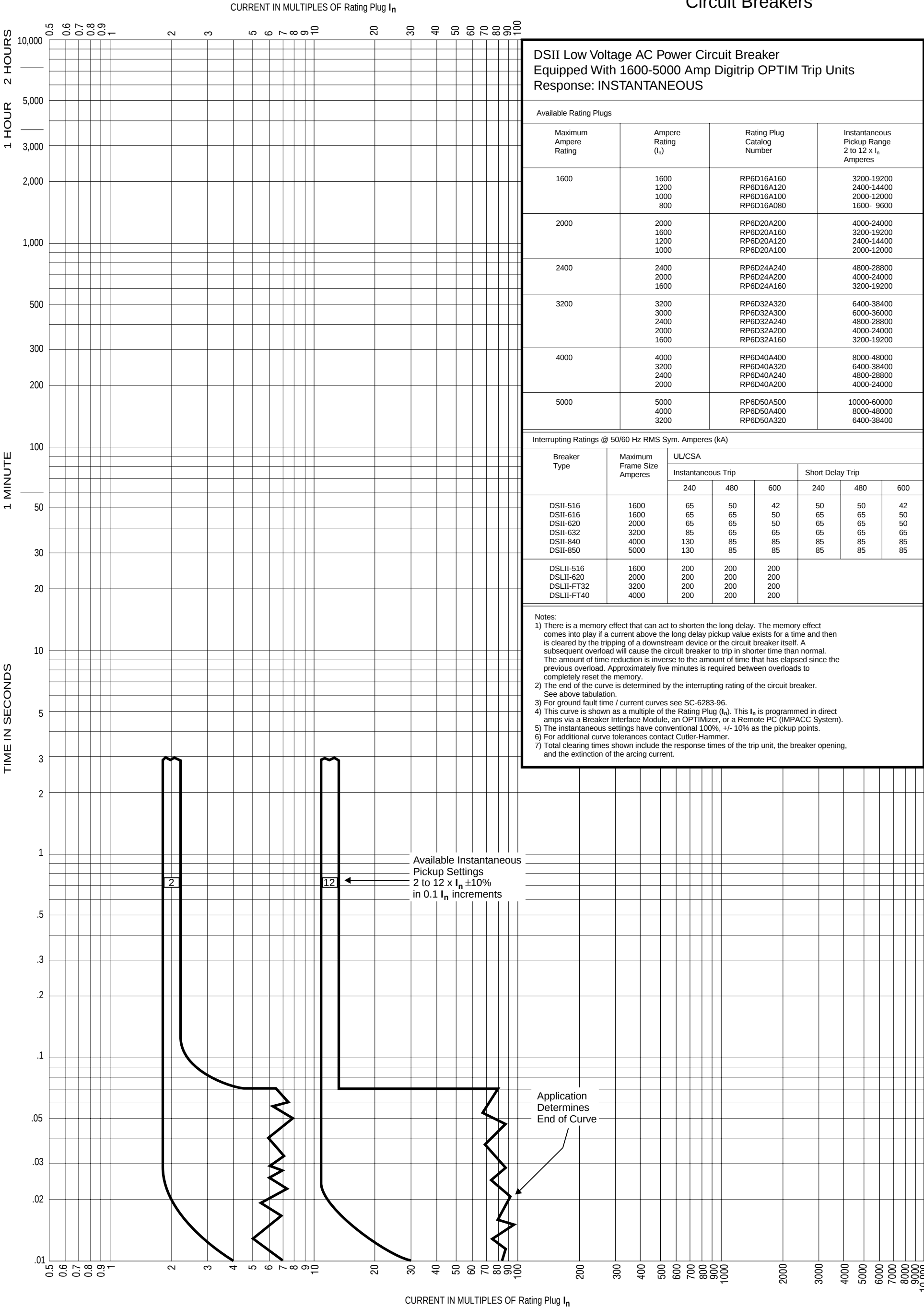
Trip Units are **NOT AVAILABLE WITH ONLY INSTANTANEOUS PROTECTION. THIS CURVE MUST BE USED** in conjunction **WITH Curve No. SC-6275-95, SC-6276-95, or SC-6277-95** for Long Delay & Short Delay protection to obtain complete time-current characteristic.

Curve No. SC-6281-96A
Dwg. No. 1C97337
Printed in U. S. A. March 1999



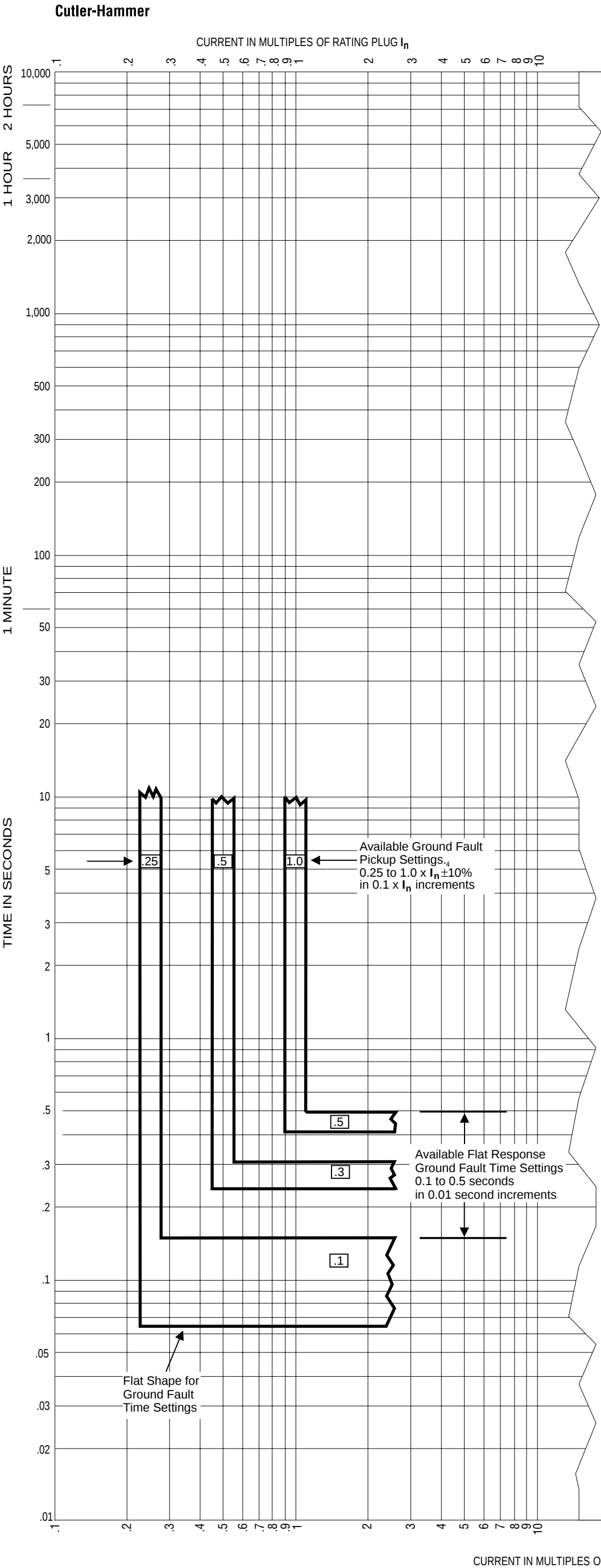
Trip Units are **NOT AVAILABLE WITH ONLY INSTANTANEOUS PROTECTION. THIS CURVE MUST BE USED** in conjunction WITH Curve No. SC-6278-95, SC-6279-95, or SC-6280-95 for Long Delay & Short Delay protection to obtain complete time-current characteristic.

Cutler-Hammer



Curve No. SC-6282-96A
Dwg. No. 1C97346
Printed in U. S. A. March 1999

Application Data 32 - 880
Characteristic Curves for
Types DSII and DSLII
Circuit Breakers



DSII Low Voltage AC Power Circuit Breaker
Equipped With 200-5000 Amp Digitrip OPTIM Trip Units
Response: GROUND FAULT TRIP or GROUND FAULT ALARM ONLY

Ground Fault Pickup Levels (Amperes)						
Maximum Ampere Rating	Ampere Rating (I _n)	Ground Fault Pickup Range .25 to 1.0 x I _n	Maximum Ampere Rating	Ampere Rating (I _n)	Ground Fault Pickup Range .25 to 1200A	
200	200	50- 200 25- 100	1600	1600	400-1200A 300-1200A 250-1200A 200-1200A	
	100			1200		
300	300	75- 300 63- 250 50- 200		2000		1000
	250					800
	200		2000			
400	400	100- 400 75- 300 63- 250 50- 200	2400		2000	500-1200A 400-1200A 300-1200A 250-1200A
	300			1600		
	250			1200		
	200			1000		
600	600	150- 600 100- 400 75- 300	3200	2400	600-1200A 500-1200A 400-1200A	
	400			2000		
	300			1600		
800	800	200- 800 150- 600 100- 400		4000		3200
	600		2400			
	400		2000			
			1600			
1200	1200	300-1200 250-1000 200- 800 150- 600	5000	4000	1000-1200A 800-1200A 600-1200A 500-1200A	
	1000			3200		
	800			2400		
	600			2000		
				5000	1200A 1000-1200A 800-1200A	
				4000		
				3200		

Interrupting Ratings @ 50/60 Hz RMS Sym. Amperes (kA)							
Breaker Type	Maximum Frame Size Amperes	UL/CSA					
		Instantaneous Trip			Short Delay Trip		
		240	480	600	240	480	600
DSII-308	800	42	30	30	30	30	30
DSII-508	800	65	50	42	50	50	42
DSII-608	800	65	65	50	65	65	50
DSII-516	1600	65	50	42	50	50	42
DSII-616	1600	65	65	50	65	65	50
DSII-620	2000	65	65	50	65	65	50
DSII-632	3200	85	65	65	65	65	65
DSII-840	4000	130	85	85	85	85	85
DSII-850	5000	130	85	85	85	85	85
DSLII-308	800	200	200	200			
DSLII-516	1600	200	200	200			
DSLII-620	2000	200	200	200			
DSLII-FT32	3200	200	200	200			
DSLII-FT40	4000	200	200	200			

- Notes:
- 1) The end of the curve is determined by the interrupting rating of the circuit breaker. See above tabulation.
 - 2) For phase current time / current curves, see SC-6275-96, SC-6276-96, SC-6277-96, SC-6278-96, SC-6279-96, and SC-6280-96.
 - 3) The curve is shown as a multiple of the Rating Plug (I_n). This I_n setting is programmable in direct amps via a Breaker Interface Module, an OPTIMizer, or a PC (IMPACC System).
 - 4) The ground fault settings have conventional 100%, +/- 10% as the pickup points.
 - 5) Except as noted tolerances on current levels are +/- 10% of values shown in chart.
 - 6) For Testing Purposes Only: When using an external single phase current source to check low level ground fault current settings, it is advisable to use the Auxiliary Power Module (APM). See TEST PROCEDURES in Instruction Leaflet.
 - 7) The rating plug is for 50 Hz and 60 Hz application.
 - 8) Curve apply from -20°C to +55°C ambient; temperatures above 95°C cause automatic trip.
 - 9) With zone interlocking on ground fault utilized and no restraining signal, the minimum time band applies - regardless of setting.
 - 10) For additional curve tolerances contact Cutler-Hammer.
 - 11) Total clearing times shown include the response times of the trip unit, the breaker opening, and the extinction of the arcing current.

