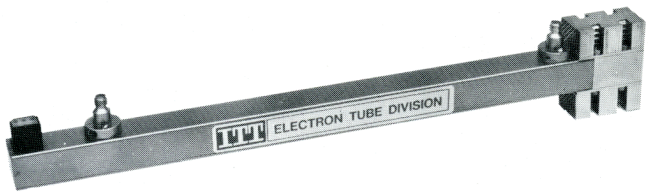
ELECTRON TUBE DIVISION
P.O. BOX 100
Easton, Pennsylvania 18042
Telephone 215 252-7331

F-2147



TRAVELING WAVE TUBE

DESCRIPTION

The tube type 2147 is a miniature, lightweight, very broad band 12 watt CW traveling wave tube amplifier covering the frequency range of 2.5 to 7.5 GHz with 50 dB small signal gain. The tube uses a helix type slow-wave structure and is PPM focused with samarium cobalt magnets. It is of metal-ceramic construction for rugged environmental applications. The tube can be either conduction or air cooled and may be mounted in any position. The collector is isolated and may be depressed up to 50% of the cathode voltage. Type SMA coaxial fittings are provided for RF input and output. The tube may also be equipped with QRM RF fittings which make the tube completely plug-in in a blind rack and panel mounting fashion. A very small AMP six-pin subminiature plug (#862584-1) is used for d.c. connection to the tube. An anode electrode is provided that may be used for gain, current control and ion trapping. A focus control is also provided which can also be used for gain control.

RF PERFORMANCE

	Typical Values	Performance Limits
Frequency	2.5-7.5 GHz	2.5-7.5 GHz
Output Power	15 Watts	12 Watts Min.
Power Gain	47 dB	45 dB Min.
Noise Figure	29 dB	32 dB Max.
Duty Cycle	CW	CW

ELECTRICAL REQUIREMENTS

	Typical Values	Performance Limits Min.	Max.	Units
Cathode Voltage	—2150	—2100	—2200	Volts
Cathode Current	80	—	95	mA
Anode Voltage	180	—2200	500	Volts
Heater Voltage	6.3	6.0	6.6	Volts
Heater Current	.8	—	1.0	Amp
Helix Current	5	—	16	mA
Collector Voltage	—950	—	—1075	Volts

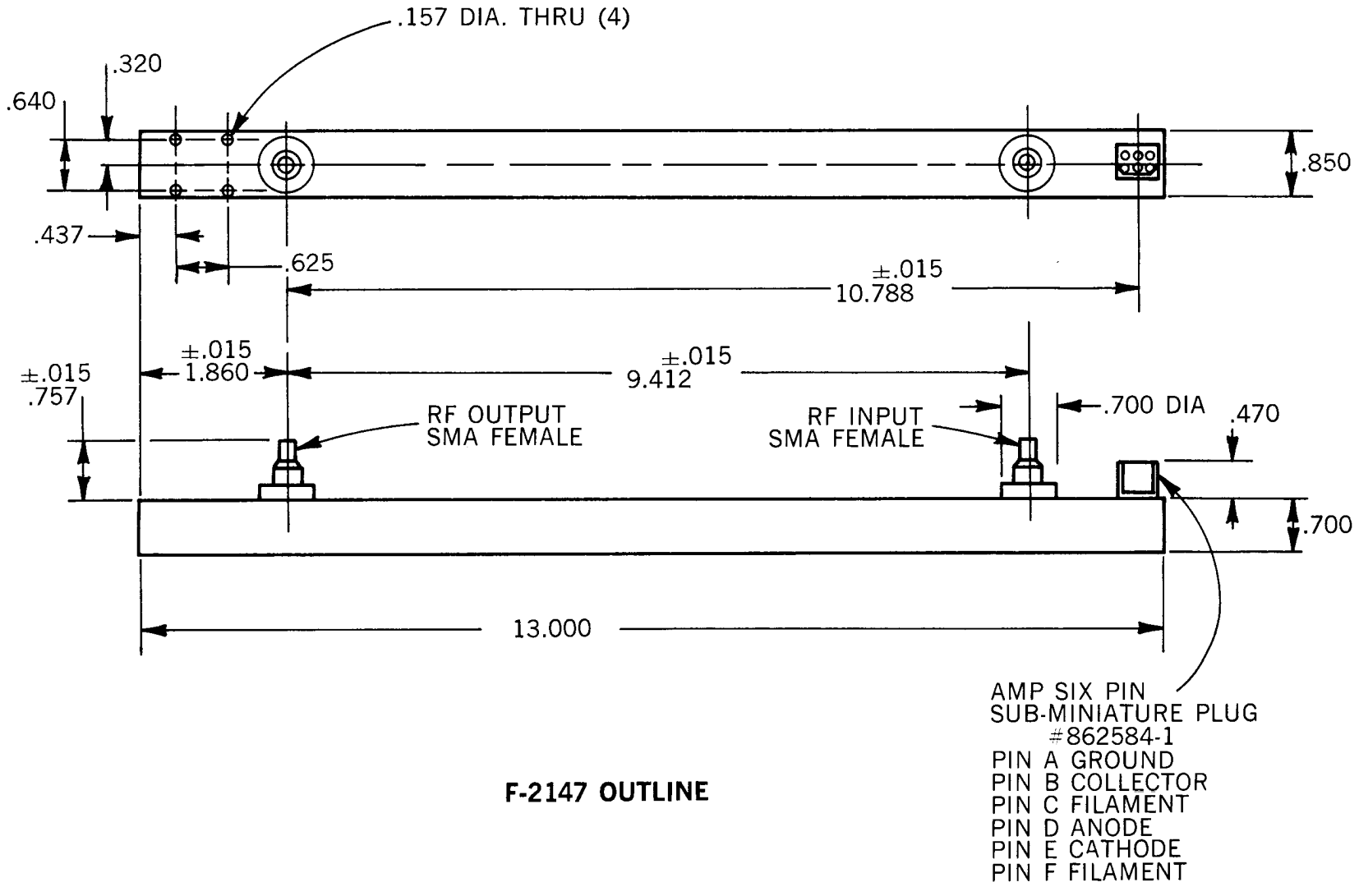
MECHANICAL

RF Connections	SMA Female
DC Connections	AMP Six-Pin Subminiature #862584-1
Cooling (NOTE 1)	Conduction or Air Cooling
Weight	1.0 Pounds
Mounting Position	Any
Construction	Metal-Ceramic
Focusing	PPM

ENVIRONMENTAL

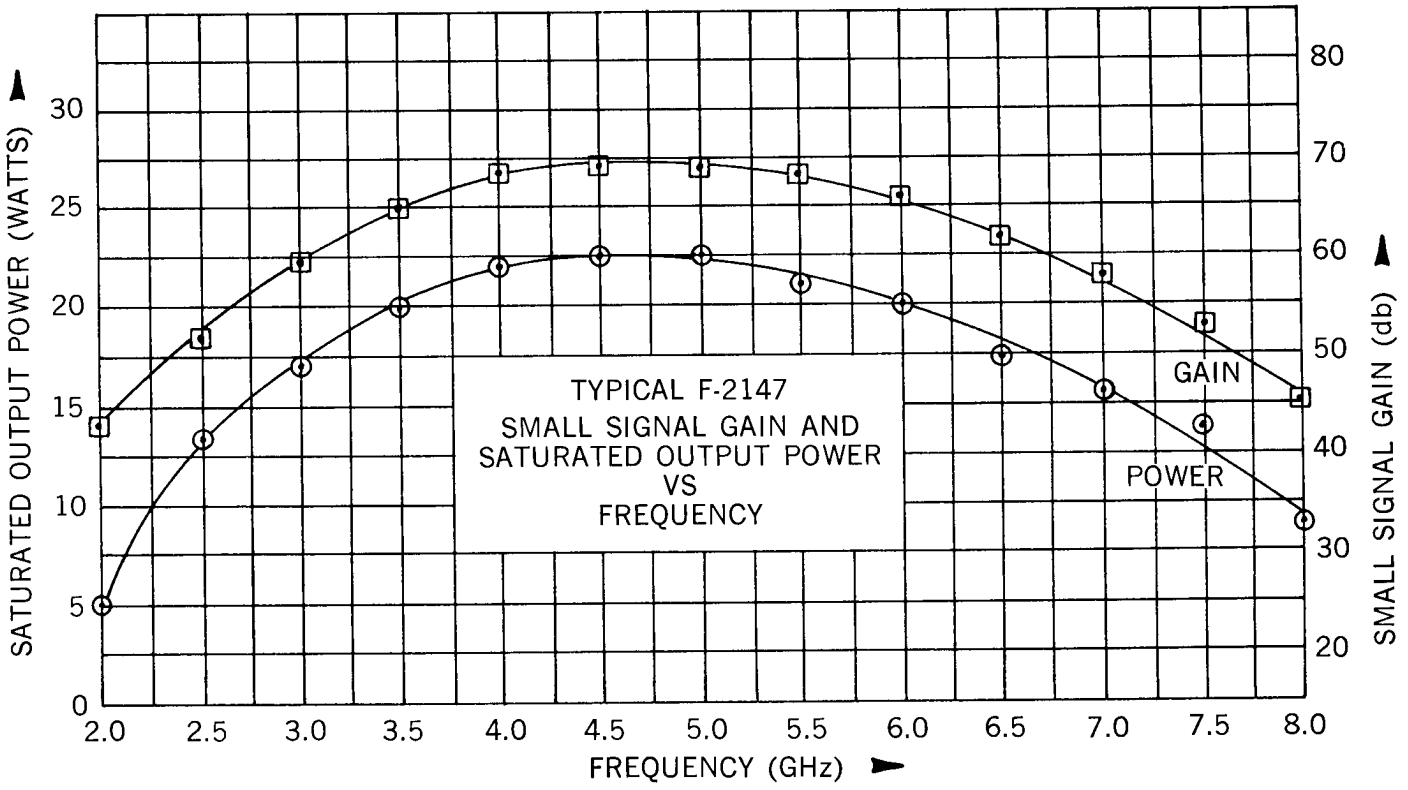
Shock	40G, 11 Millisec
Vibration	30G, 5-2000 Cycles
Temperature	—40 to +85° C

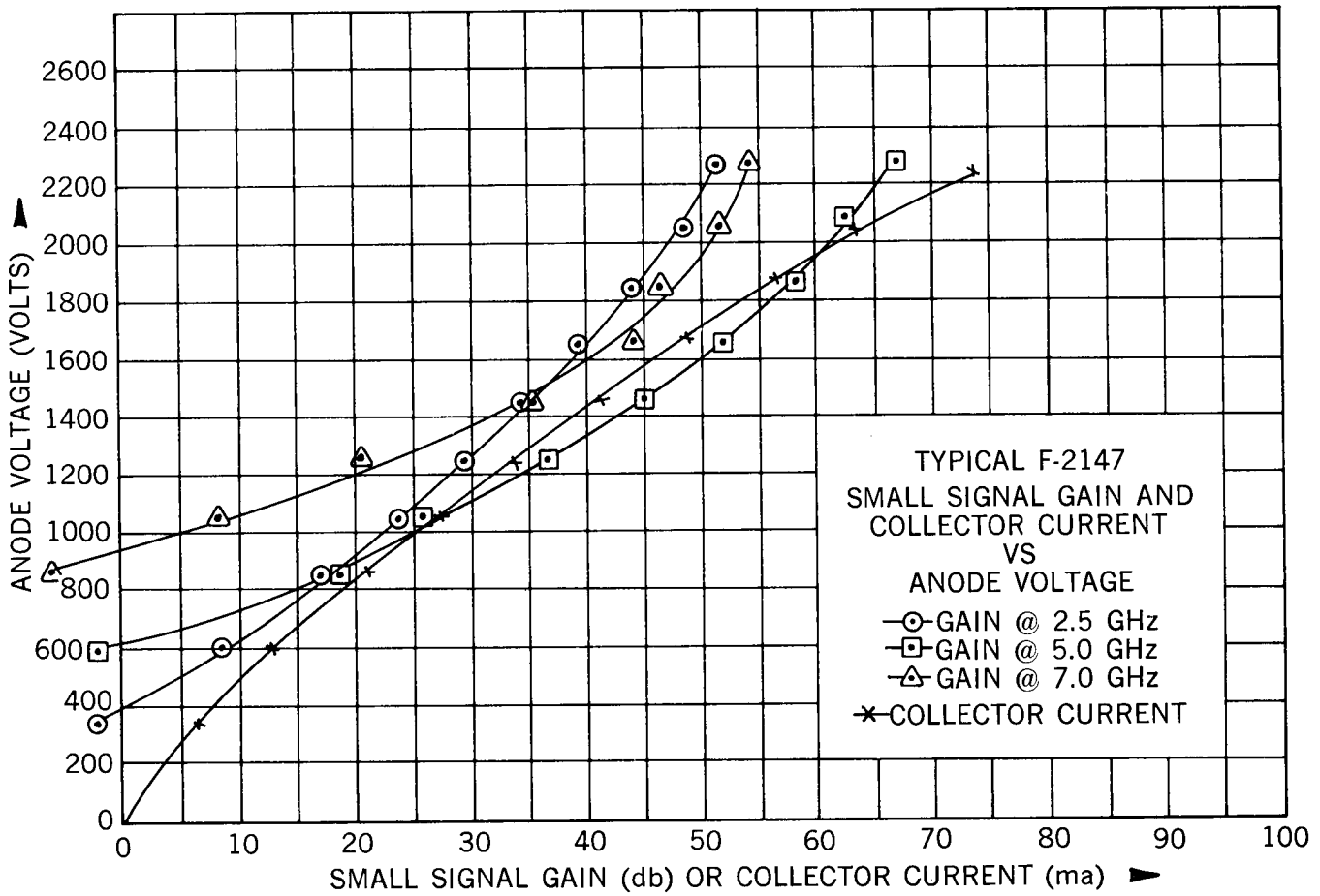
NOTE 1: For proper conduction cooling, the tube must be securely fastened to a flat heat sink surface. The use of heat sink compound (Astrodyne 829 or equivalent) is recommended. Air cooling fins can also be supplied to make the tube air cooled.



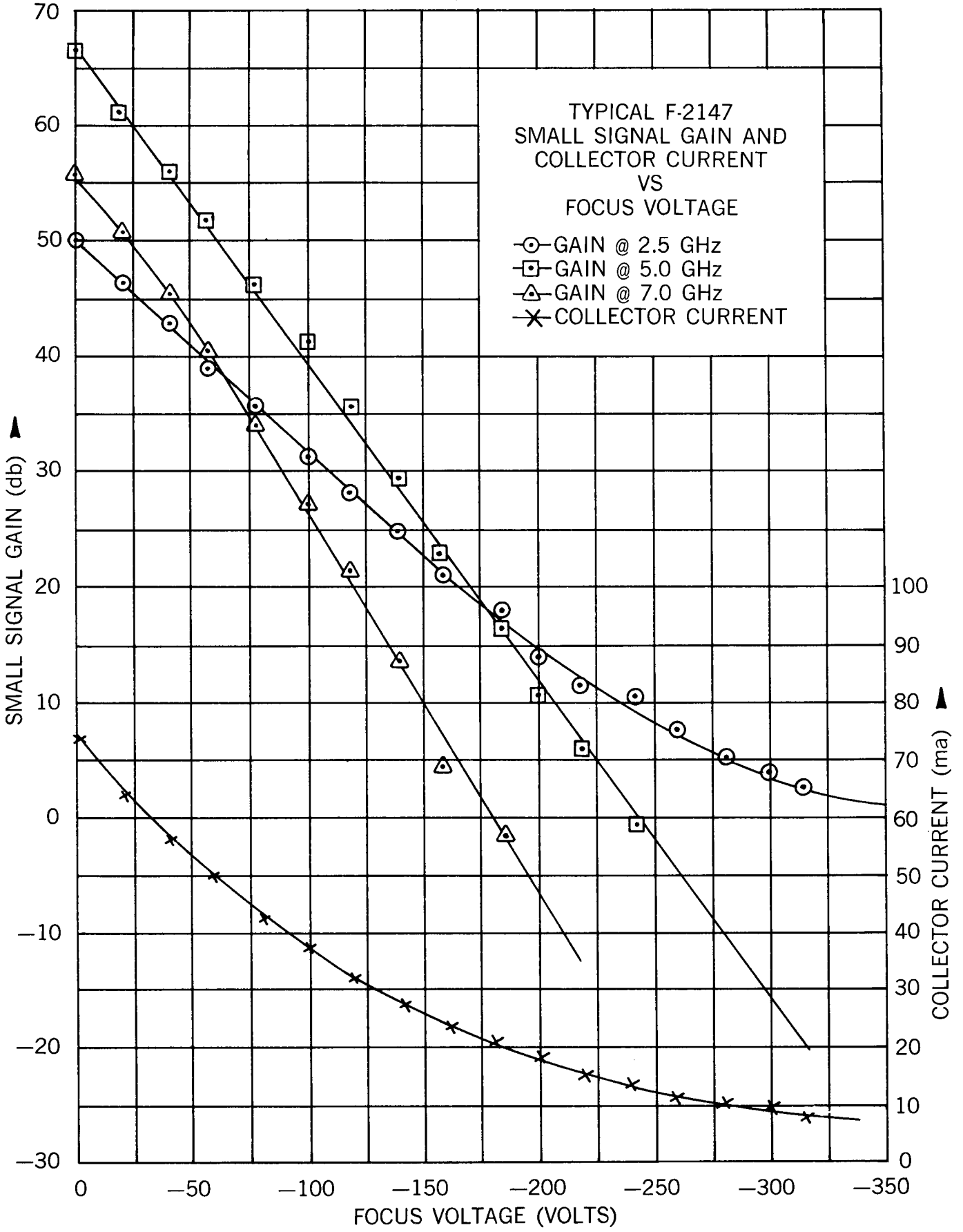
F-2147 OUTLINE

F-2147


SATURATED OUTPUT POWER (WATTS)
SMALL SIGNAL GAIN (db)
FREQUENCY (GHz)
TYPICAL F-2147
SMALL SIGNAL GAIN AND
SATURATED OUTPUT POWER
VS
FREQUENCY
GAIN
POWER
0
5
10
15
20
25
30
20
30
40
50
60
70
80
2.0
2.5
3.0
3.5
4.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
8.0


ANODE VOLTAGE (VOLTS)
SMALL SIGNAL GAIN (db) OR COLLECTOR CURRENT (ma)
TYPICAL F-2147
SMALL SIGNAL GAIN AND
COLLECTOR CURRENT
VS
ANODE VOLTAGE
GAIN @ 2.5 GHz
GAIN @ 5.0 GHz
GAIN @ 7.0 GHz
COLLECTOR CURRENT
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
2600
0
10
20
30
40
50
60
70
80
90
100

F-2147



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