Type 12F

1206 Fast-Acting SMD Fuses

12F Series are the fuses set the industry standard for performance, reliability and quality. The solder-free design provides excellent on-off and temperature cycling characteristics during use and also makes our SMD fuses more heat and shock tolerant than typical subminiature fuses.

Electrical Characteristics			
Rated Current	1.0In	2.5In	3.5In
250mA∽5A	4 hour min.	5 sec max.	-
6A∽40A		-	5 sec max.

Features

▲AEC-Q200 Automotive Grade Certified
▲Rapid interruption of excessive current
▲Compatible with reflow and wave solder
▲Ceramic and glass construction
▲One time positive disconnect
▲Lead Free and Halogen free material

Specifications

Part No.	Rated Voltage DC	Rated Current A	Breaking Capacity A[1]	Typical Cold. Resistance (mOhms)[2]	Typical Voltage Drop(mV)	Typical Pre-Arcing I^2T (A^2Sec)[3]	Alpha Marking
12F0250	72V 63V 32V 24V	250 mA	50A@72Vdc 50A@63Vdc 150A@32Vdc 300A@24Vdc	3608	1407	0.0004	.25
12F0375		375mA		1882	718	0.0008	E
12F0500		500mA		1028	650	0.0022	0.5
12F0750		750mA		601	616	0.0057	.75
12F1100		1A		490	510	0.10	H
12F1150		1.5A		240	367	0.15	K
12F1200		2A		132	316	0.385	N
12F1250		2.5A		77	240	0.65	O
12F1300		3A		48	187	1.15	P
12F1350		3.5A		40	180	1.63	R
12F1400		4A		35	173	1.73	S
12F1450	32V 24V	4.5A	4.5A∽30A 150A@32Vdc 300A@24Vdc 40A 150A@32Vdc 200A@24Vdc	30	164	2.00	X
12F1500		5A		25	141	2.89	T
12F1600		6A		16.5	142	11	F
12F1700		7A		12	140	12.5	7
12F1800		8A		8.5	110	14	M
12F2100		10A		6.8	100	20	U
12F2120		12A		5	85	9.2	12
12F2150		15A		3.9	78	14	15
12F2200		20A		1.8	60	47.17	20
12F2250		25A		1.5	57	32	25
12F2300		30A		1.25	68	43	30
12F2400		40A		0.85	95	240	XL

∗DC Interrupting Rating (Measured at rated voltage, time constant of less than 50 microseconds, battery source)

∗DC Cold Resistance are measured at <10% of rated current in ambient temperature of 25℃

∗Typical Pre-arcing I^2T are measured at 10In Current

Specifications are subject to change without notice. Application testing is strongly recommended.

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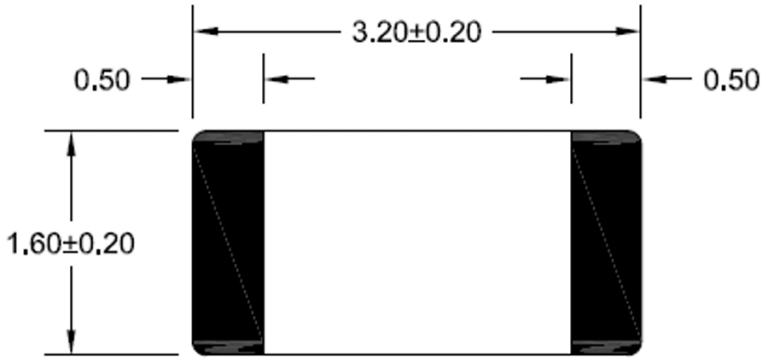
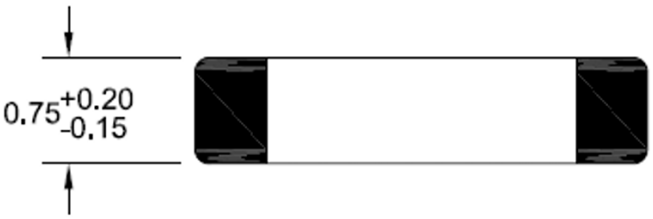
Dimension Drawing not to scale(Unit:mm)

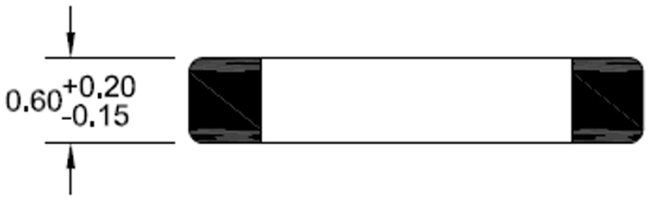
Top view



Side view ①250mA∽750mA /20A∽40A

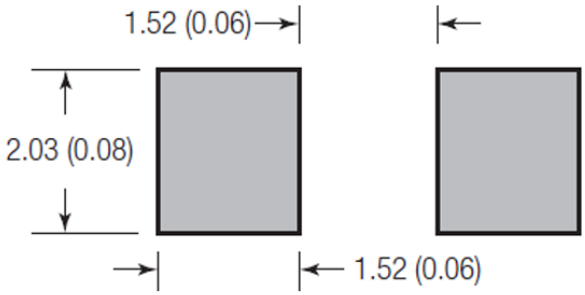


②1A∽15A



Recommended stencil thickness is 0.15mm (10A-40A)

Recommended land pattern Unit: mm(inch)



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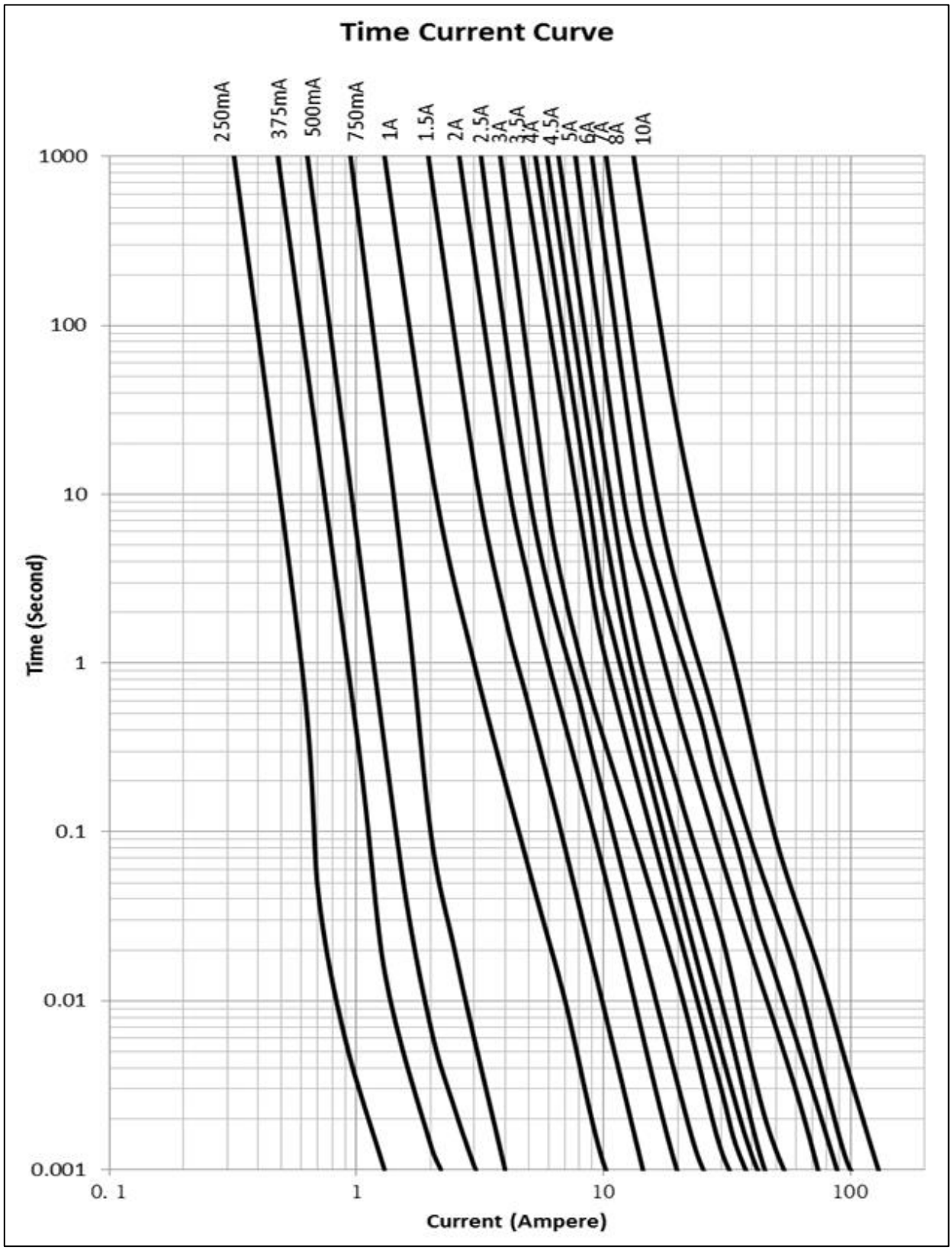

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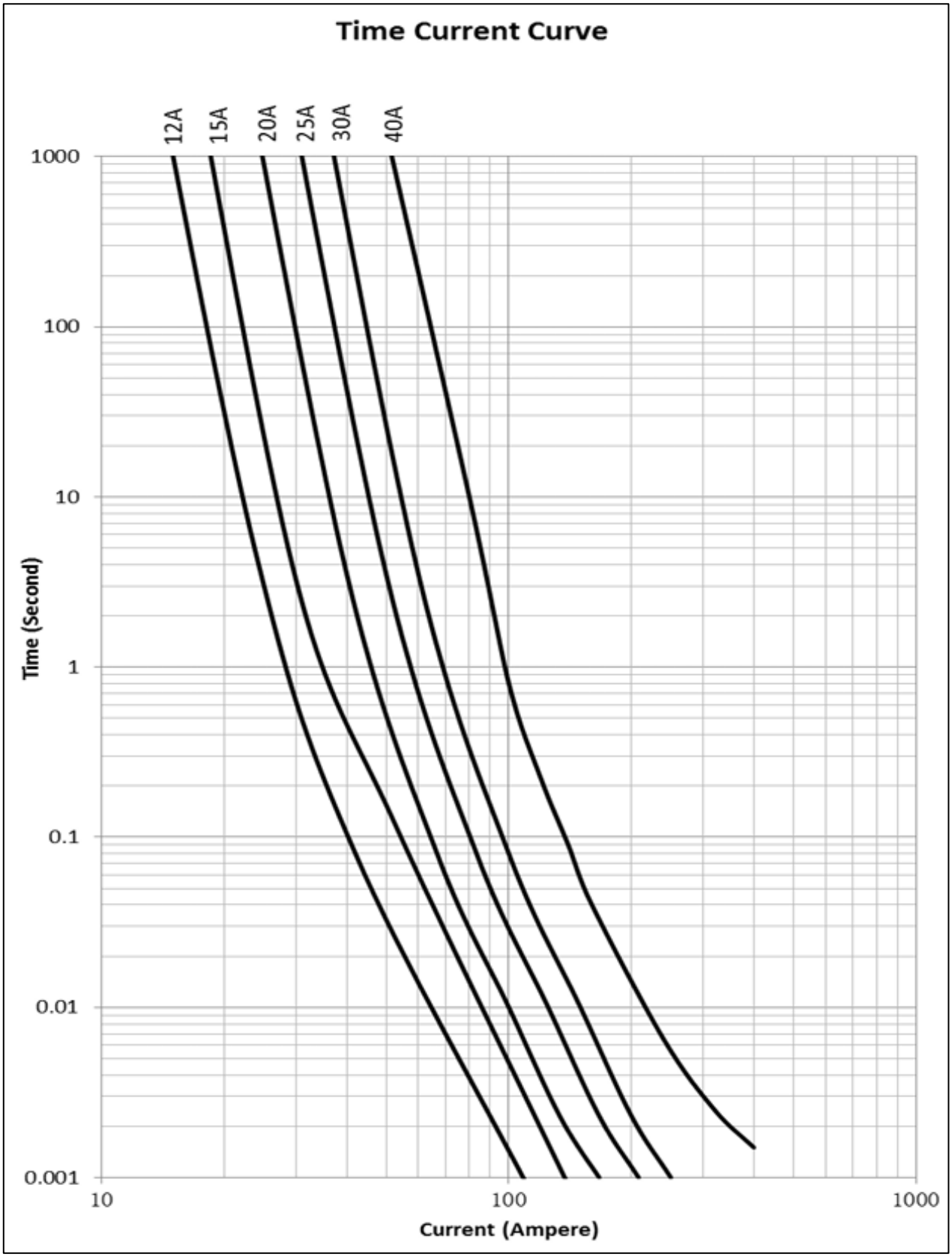

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Soldering method

■Wave solder

Reservoir temperature: 260℃

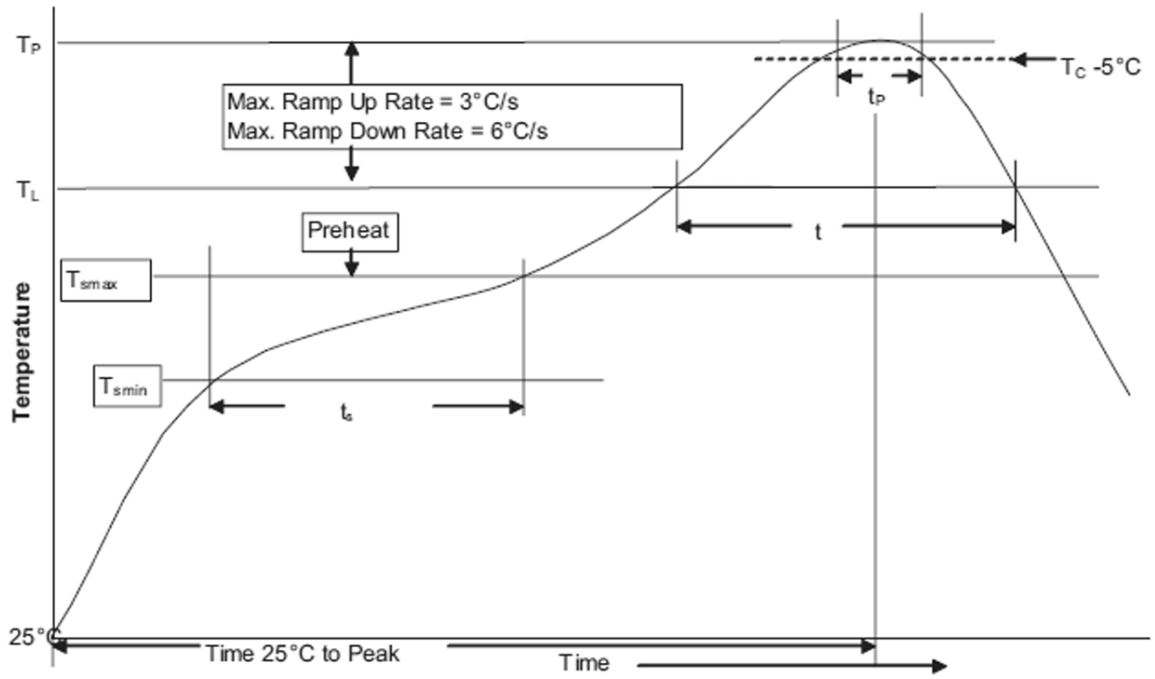
Time in reservoir: 10 seconds maximum

■Infrared reflow

Temperature: 260℃

Time: 30 seconds maximum

Solder reflow profile



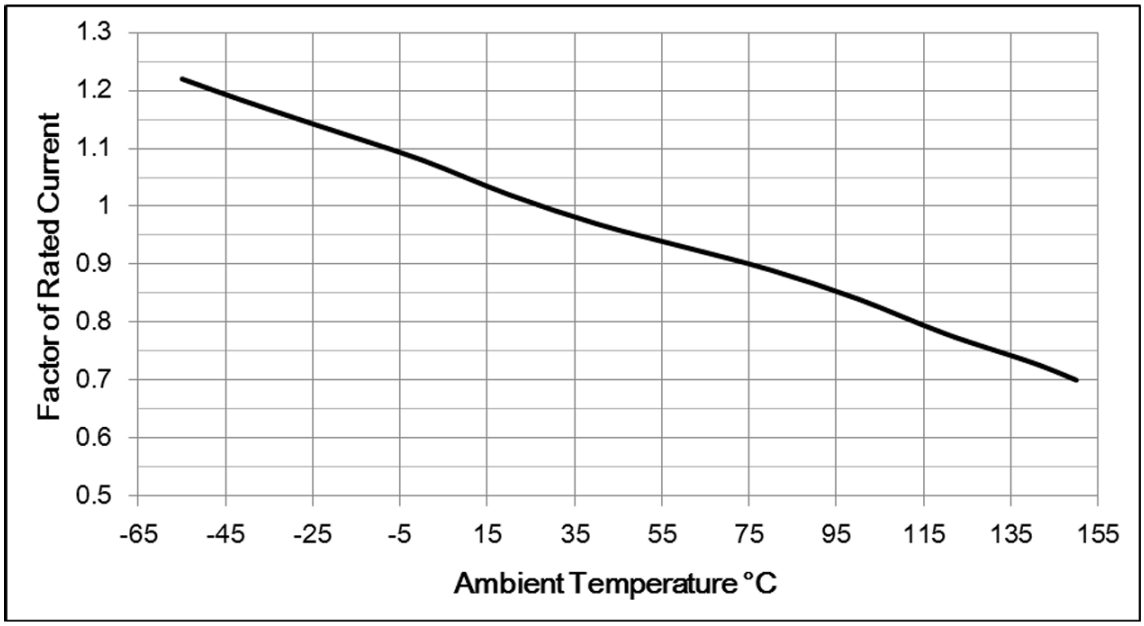
Profile Feature		Lead(Pb) free solder
Preheat and soak	• Temperature min.(T_{smin})	150℃
	• Temperature max. (T_{smax})	200℃
	• Time (T_{smin} to T_{smax}) (t_S)	60 - 120 Seconds
Average ramp up rate T_{smax} to T_P		3℃ / Second Max.

Liquidous temperature (T_L) Time at liquidous (t_L)	217℃ 60 - 150 Seconds
Peak package body temperature (T_P)	260℃
Time (t_P) within 5℃ of the specified classification temperature (T_C)	30 Seconds
Average ramp-down rate (T_P to T_{smax})	6℃ / Second Max.
Time (25℃ to Peak Temperature)	8 Minutes Max.

Temperature Derating Curve

■Normal ambient temperature: 23+/-3℃

■Operating temperature: -55∽150℃, with proper correction factor applied



Package

3000 fuses on 8mm tape-and-reel on a 7 inch (178mm) reel per EIA Standard 481.

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