



	SYMBOL	COMMON DIMENSIONS		
		MIN.	NOR.	MAX.
TOTAL THICKNESS	A	---	---	1.1
STAND OFF	A1	0.16	---	0.26
SUBSTRATE THICKNESS	A2	0.21		REF
MOLD THICKNESS	A3	0.54		REF
BODY SIZE	D	4.5		BSC
	E	4.5		BSC
BALL DIAMETER		0.3		
BALL OPENING		0.275		
BALL WIDTH	b	0.27	---	0.37
BALL PITCH	e	0.5		BSC
BALL COUNT	n	48		
EDGE BALL CENTER TO CENTER	D1	3.5		BSC
	E1	3.5		BSC
BODY CENTER TO CONTACT BALL	SD	0.25		BSC
	SE	0.25		BSC
PACKAGE EDGE TOLERANCE	aaa	0.1		
MOLD FLATNESS	bbb	0.1		
COPLANARITY	ddd	0.08		
BALL OFFSET (PACKAGE)	eee	0.15		
BALL OFFSET (BALL)	fff	0.08		

**Notes:**

1. Controlling dimensions in millimeters
2. Ref: JEDEC MO-195C

	<b>DATE: 02/22/12</b>
	<b>MO-195CDESCRIPTION: 48-Ball, Thin Fine Pitch Ball Grid Array, TFBGA</b>
	<b>PACKAGE CODE: NC48</b>
<b>DOCUMENT CONTROL #: PD - 2103</b>	<b>REVISION: --</b>