Packing Information

ES-12 Package, TR Suffix

Footprint: 3 mm × 3 mm
Contact Population: Four Sides (QFN)
Contact Count: 12 plus exposed pad
Non JEDEC Standard

- Embossed tape and reel
- Contacts inward
- Pin 1 on trailing device edge, sprocket hole side
- 1500 devices per 7 in. reel
- 40-50 trailer pockets
- 75-80 leader pockets

Leader pockets are the first off the reel when the tape is unreeled for dispensing devices. Trailer pockets are the last pockets off the reel when unreeled for dispensing devices.

Dimensions in mm, may vary with supplier

Carrier Tape			Cover Tape
W: 12.00 E_1: 1.75 F: 5.5 T: 0.30	D_0: 1.50 P_0: 4.00 P_1: 8.00 P_2: 2.00	A_0: 3.30 B_0: 3.30 K_0: 1.10 D_1: 1.50	W_C: 9.3 T_1: 0.061

1. Pocket centerlines to cavity center, not to pocket detection hole.
2. A_0 and B_0 measured 0.3 mm above bottom of pocket.

Access hole and hub configuration may vary at supplier discretion within limits shown

Dimensions in mm

Type	A	B	C	D	N
Plastic 7 in.	178 (Nom)	1.5 (Min)	$13^{+0.5}_{-0.2}$	20.2 (Min)	60 (Nom)
W_1 (inside, at Hub)			12.4 (+2.0/-0.0)		
W_2 (outside, at Hub)			18.4 (Max)		

Reference EIA 481

Reference EIA 481

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Carton Dimensions (mm)

Type	Length	Width	Height	Inner Carton Standard Quantity	Outer Carton Standard Quantity
TC14	185	205	35	1500	
TC11A	245	214	212		9000
TC11	321	318	291		18000
TC17A	536	403	400		72000

* Carton Details pertain only to Full Standard Increments. Partial orders will only be provided for samples or due to exceptional circumstances. Partial orders may not be packed according to Carton Details but may require protective filler, empty inner boxes or other packing modifications.

Label Details *

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Reel Production Label [A]

1.125in x 4in

Box Flap Label [B]

1.125in x 4in

1D Production Label [C]

2.5in x 3.75in

Inner Carton Label [D]

4in x 6.5in

Outer Carton Label [E]

4in x 6.5in

Outer Carton Address Label [F]

4in x 6.5in

* Label examples are shown for content purposes only. Labels are not shown to scale. Given label dimensions are approximate. As required, the necessary compliance symbols on the labels will meet the ship to country regulations.

Revision History

Revision No.	Date	ECN Number	Description
0	7/31/2017	OI	ORIGINAL RELEASE
1	8/1/2017	CR-2017-02685	UPDATE JEDEC REFERENCE AND PACKAGE DESCRIPTION.
2	8/13/2018	CR-2018-03189	UPDATE PACKAGE GRAPHIC. UPDATE ORIENTATION GRAPHIC. COMBINE INNER/OUTER PACKING OPTIONS TABLES. UPDATE LABEL GRAPHICS (1D, INNER, OUTER, ADDRESS). UPDATE COPYRIGHT DATE. UPDATE ALLEGRO ADDRESS.

This document provides reference information that can be used to identify leadform and packing options offered by Allegro MicroSystems, LLC. This information is for reference only, and not for tooling use. This information is subject to change without notice. Packing and labelling for shipment may vary with device type, quantities, and other conditions; specifications may vary with contract terms and availability.

Packing options vary according to the individual device being offered. Refer to the device datasheet (visit our website at: *www.allegromicro.com*) for a listing of packing options for that device. Not all options are available for any particular package designation or device type, and provision of certain configurations may be subject to minimum volume or NCNR (noncancellation, nonreturn) limitations. Contact your local Allegro field service representative for additional information.

For more information on the physical appearance of device packages and leadforms, refer to the device datasheet or the application note *Allegro Package Designations* on the Allegro website.

When applicable, references are provided to industry standards, such as for tape and reel specifications standard package outline designations. These references are provided for informational purposes only, and do not necessarily indicate full conformity with that standard in all respects.

No dimensional tolerances are guaranteed or implied for bulk packing.

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