

UMH13N Dual Digital Transistors (NPN+NPN)

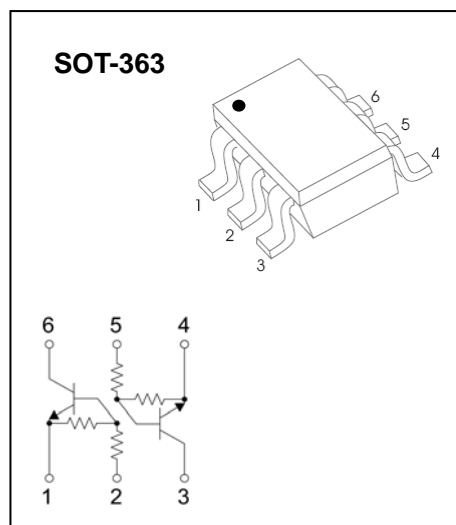
FEATURES

- Two DTC143Z chips in a package
- 100 mA output current capability
- Reduces component count

APPLICATIONS

- Low current peripheral driver
- Control of IC inputs
- Replaces general-purpose transistors in digital applications

MARKING:



MAXIMUM RATINGS (Ta=25°C unless otherwise noted)

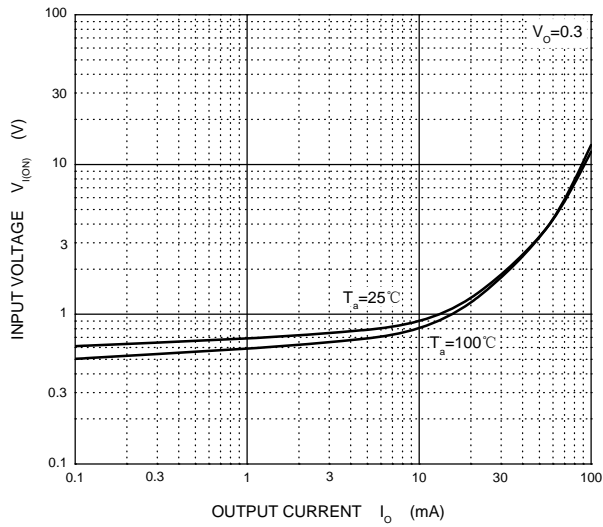
| Symbol | Parameter | Value | Unit |
|-----------------------------------|--|----------|------|
| V _{CC} | Supply Voltage | 50 | V |
| V _i | Input Voltage | -5~+30 | V |
| I _o | Output Current | 100 | mA |
| P _D | Total Power Dissipation | 150 | mW |
| T _J , T _{stg} | Operation Junction and Storage Temperature Range | -55~+150 | °C |

ELECTRICAL CHARACTERISTICS PER DEVICE(Ta=25°C unless otherwise specified)

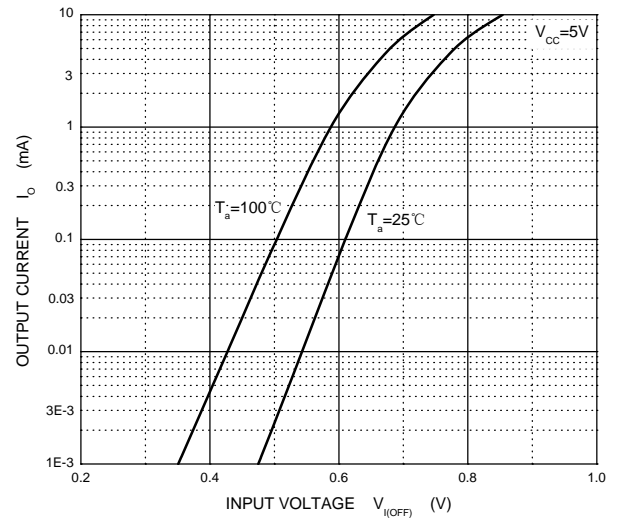
| Parameter | Symbol | Test conditions | Min | Typ | Max | Unit |
|------------------------|--------------------------------|--|------|-----|------|------|
| Input turn-on voltage | V _{i(on)} | V _o =0.3V, I _o =5mA | | | 1.3 | V |
| Input cut-off voltage | V _{i(off)} | V _{CC} =5V, I _o =100μA | 0.5 | | | V |
| Output voltage | V _{O(on)} | I _o =5mA, I _i =0.25mA | | | 0.3 | V |
| Input cut-off current | I _i | V _i =5V | | | 1.8 | mA |
| Output cut-off current | I _{O(off)} | V _{CC} =50V, V _i =0 | | | 0.5 | μA |
| DC current gain | G _i | V _o =5V, I _o =10mA | 80 | | | |
| Transition frequency | f _T | V _o =10V, I _o =5mA, f=100MHz | | 250 | | MHz |
| Input resistance | R ₁ | | 3.29 | 4.7 | 6.11 | kΩ |
| Resistance ratio | R ₂ /R ₁ | | 8 | 10 | 12 | |

Typical Characteristics

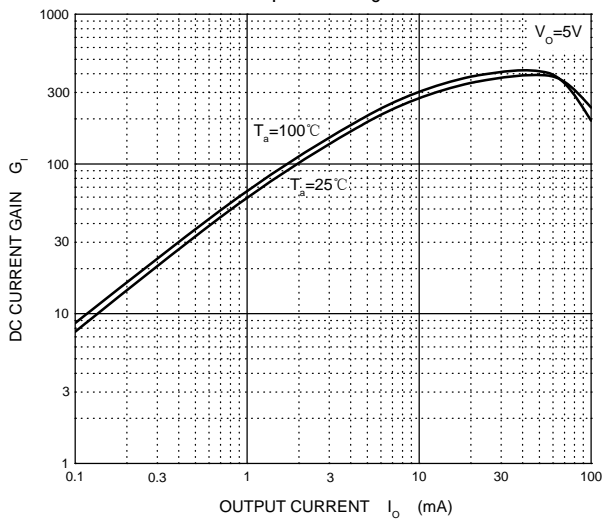
ON Characteristics



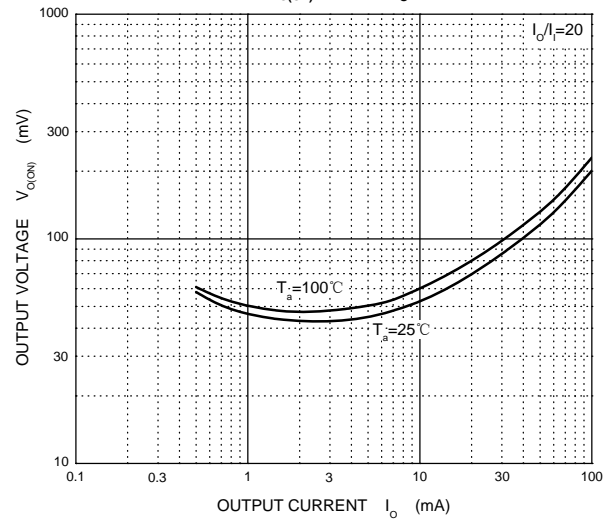
OFF Characteristics



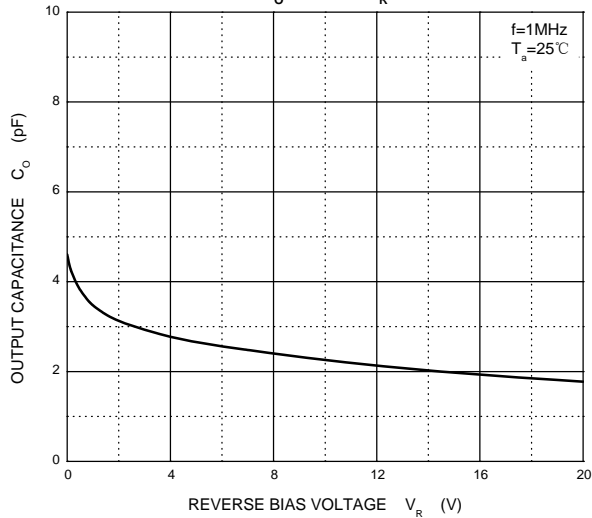
$G_I - I_O$



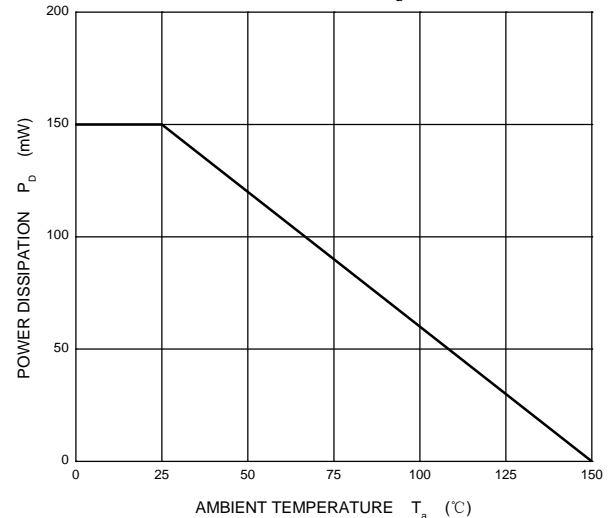
$V_{O(ON)} - I_O$



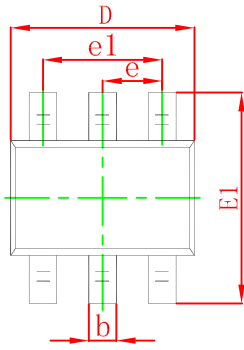
$C_O - V_R$



$P_D - T_a$



SOT-363 Package Outline Dimensions



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 0.900 | 1.100 | 0.035 | 0.043 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 0.900 | 1.000 | 0.035 | 0.039 |
| b | 0.150 | 0.350 | 0.006 | 0.014 |
| c | 0.100 | 0.150 | 0.004 | 0.006 |
| D | 2.000 | 2.200 | 0.079 | 0.087 |
| E | 1.150 | 1.350 | 0.045 | 0.053 |
| E1 | 2.150 | 2.400 | 0.085 | 0.094 |
| e | 0.650 TYP | | 0.026 TYP | |
| e1 | 1.200 | 1.400 | 0.047 | 0.055 |
| L | 0.525 REF | | 0.021 REF | |
| L1 | 0.260 | 0.460 | 0.010 | 0.018 |
| theta | 0° | 8° | 0° | 8° |

SOT-363 Suggested Pad Layout



Note:

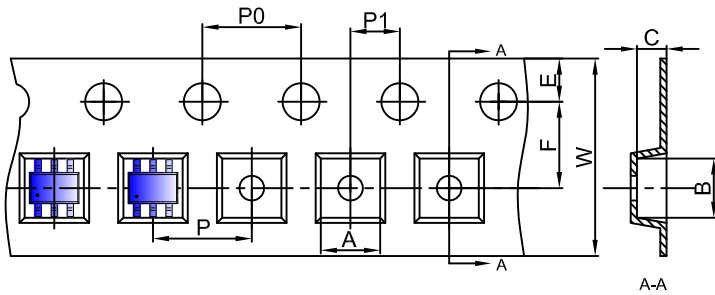
1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

NOTICE

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SOT-363 Tape and Reel

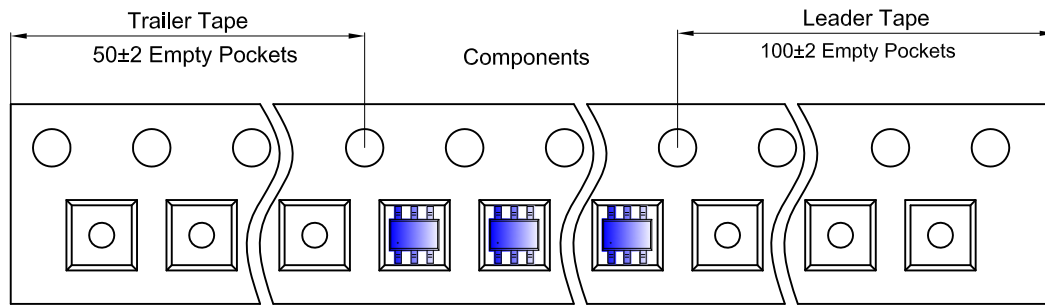
SOT-363 Embossed Carrier Tape



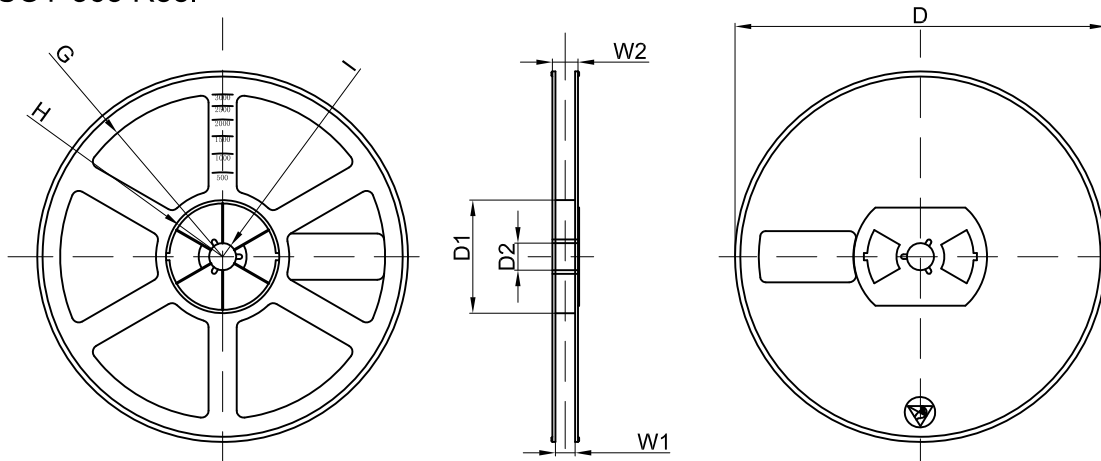
Packaging Description:
 SOT-363 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 17.8cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

| Dimensions are in millimeter | | | | | | | | | | |
|------------------------------|------|------|------|-------|------|------|------|------|------|------|
| Pkg type | A | B | C | d | E | F | P0 | P | P1 | W |
| SOT-363 | 2.25 | 2.55 | 1.20 | Ø1.50 | 1.75 | 3.50 | 4.00 | 4.00 | 2.00 | 8.00 |

SOT-363 Tape Leader and Trailer



SOT-363 Reel



| Dimensions are in millimeter | | | | | | | | |
|------------------------------|---------|-------|-------|--------|--------|-------|------|-------|
| Reel Option | D | D1 | D2 | G | H | I | W1 | W2 |
| 7" Dia | Ø178.00 | 54.40 | 13.00 | R78.00 | R25.60 | R6.50 | 9.50 | 12.30 |

| REEL | Reel Size | Box | Box Size(mm) | Carton | Carton Size(mm) | G.W.(kg) |
|----------|-----------|------------|--------------|-------------|-----------------|----------|
| 3000 pcs | 7 inch | 45,000 pcs | 203×203×195 | 180,000 pcs | 438×438×220 | |

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