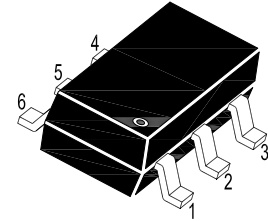
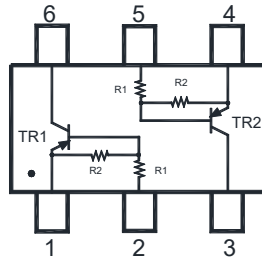


MMDTA431DW

Dual PNP Silicon Epitaxial Planar Digital Transistor

Application

- Inverted circuit
- Switching circuit
- Interface circuit
- Driver circuit



TR1: 1. Emitter 2. Base 6. Collector
TR2: 4. Emitter 5. Base 3. Collector
SOT-363 Plastic Package

Resistor Values

| R1 (K Ω) | R2 (K Ω) |
|------------------|------------------|
| 4.7 | 4.7 |

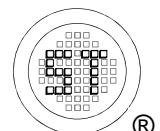
Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

| Parameter | Symbol | Value | Unit |
|---------------------------|------------|---------------|------------------|
| Collector Base Voltage | $-V_{CBO}$ | 50 | V |
| Collector Emitter Voltage | $-V_{CEO}$ | 50 | V |
| Emitter Base Voltage | $-V_{EBO}$ | 10 | V |
| Input voltage | $-V_{IN}$ | 30 | V |
| Collector Current | $-I_C$ | 0.1 | A |
| Collector Current, Pulsed | $-I_{CM}$ | 0.2 | A |
| Power Dissipation | P_{tot} | 200 | mW |
| Junction Temperature | T_j | 150 | $^\circ\text{C}$ |
| Storage Temperature Range | T_{stg} | - 55 to + 150 | $^\circ\text{C}$ |

Thermal Characteristics

| Parameter | Symbol | Max. | Unit |
|---|-----------------|------|--------------------|
| Thermal Resistance from Junction to Ambient ¹⁾ | $R_{\theta JA}$ | 625 | $^\circ\text{C/W}$ |

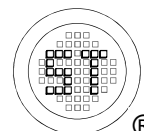
¹⁾ Device mounted on FR-4 substrate PC board, with minimum recommended pad layout..



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Characteristics at $T_a = 25^\circ\text{C}$

| Parameter | Symbol | Min. | Typ. | Max. | Unit |
|---|----------------|------|------|------|------------------|
| DC Current Gain at $-V_{CE} = 5\text{ V}$, $-I_C = 10\text{ mA}$ | h_{FE} | 20 | - | - | - |
| Collector Base Cutoff Current at $-V_{CB} = 50\text{ V}$ | $-I_{CBO}$ | - | - | 0.1 | μA |
| Emitter Base Cutoff Current at $-V_{EB} = 5\text{ V}$ | $-I_{EBO}$ | - | - | 771 | μA |
| Collector Emitter Breakdown Voltage at $-I_C = 100\ \mu\text{A}$ | $-V_{(BR)CEO}$ | 50 | - | - | V |
| Collector Emitter Saturation Voltage at $-I_C = 10\text{ mA}$, $-I_B = 0.5\text{ mA}$ | $-V_{CE(sat)}$ | - | - | 0.3 | V |
| Input Voltage (ON) at $-V_{CE} = 0.2\text{ V}$, $-I_C = 5\text{ mA}$ | $-V_{I(ON)}$ | - | - | 2.3 | V |
| Input Voltage (OFF) at $-V_{CE} = 5\text{ V}$, $-I_C = 0.1\text{ mA}$ | $-V_{I(OFF)}$ | 0.8 | - | - | V |
| Input Resistor | R_1 | 3.3 | 4.7 | 6.1 | $\text{K}\Omega$ |
| Resistor Ratio | R_2/R_1 | 0.8 | 1 | 1.2 | - |
| Transition Frequency at $-V_{CE} = 6\text{ V}$, $I_E = 10\text{ mA}$ | f_T | - | 150 | - | MHz |



MMDTA431DW

Electrical Characteristics Curves

Fig. 1. Output Current vs. Output Voltage

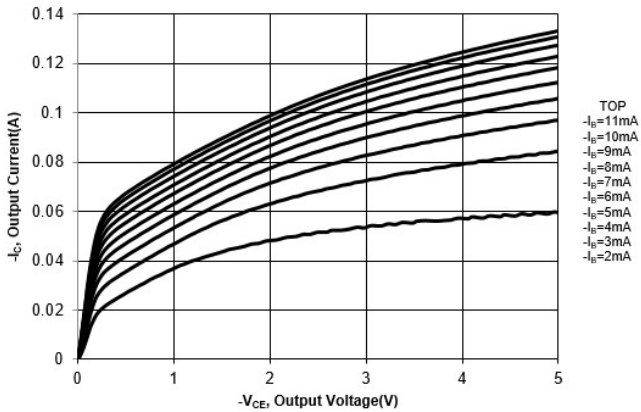


Fig. 2. Output Current vs. Input On Voltage

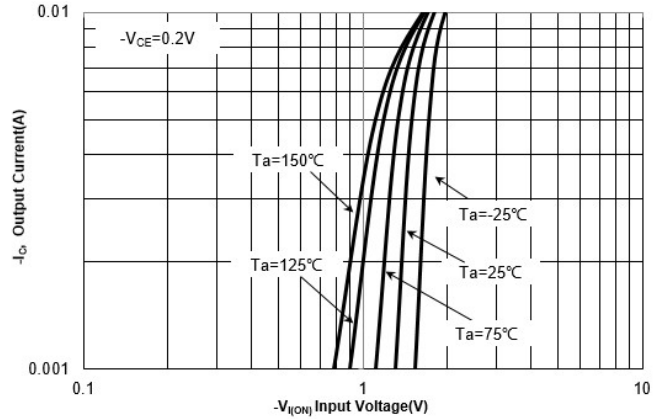


Fig. 3. Output Current vs. Input Off Voltage

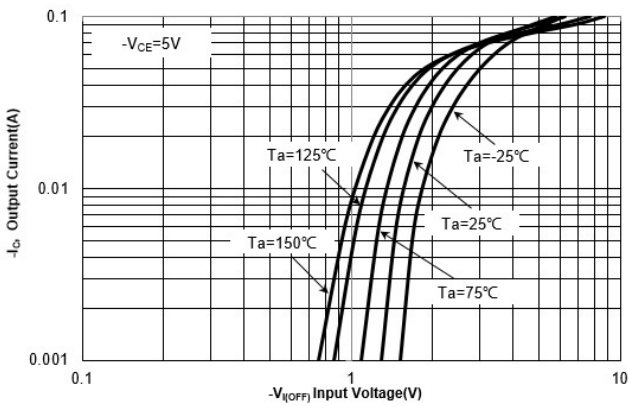


Fig. 4. DC Current Gain vs. Output Current

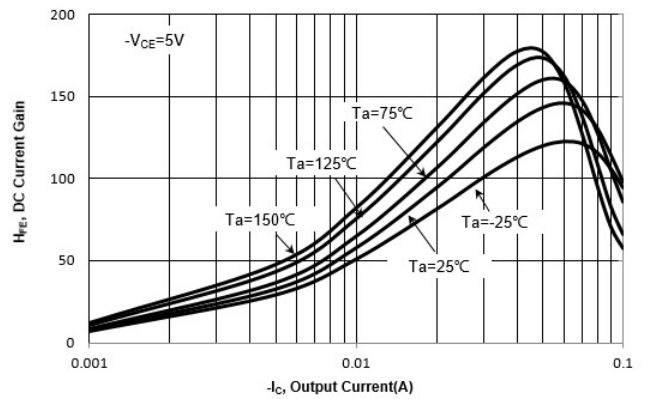


Fig. 5. $V_{CE(SAT)}$ vs. Output Current

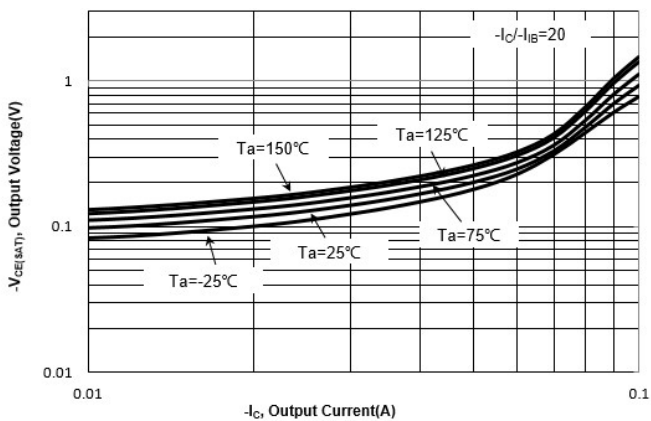
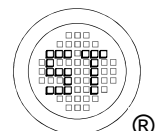
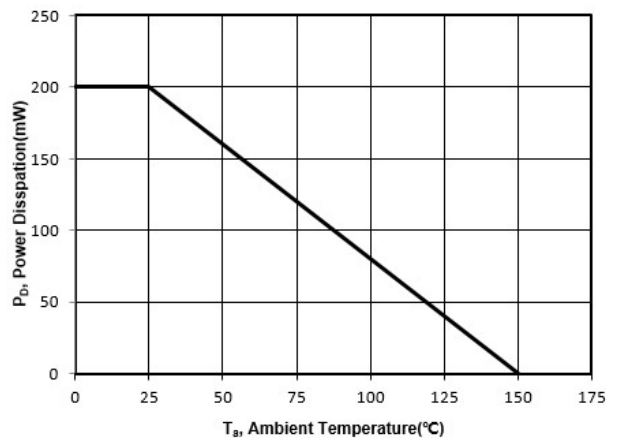


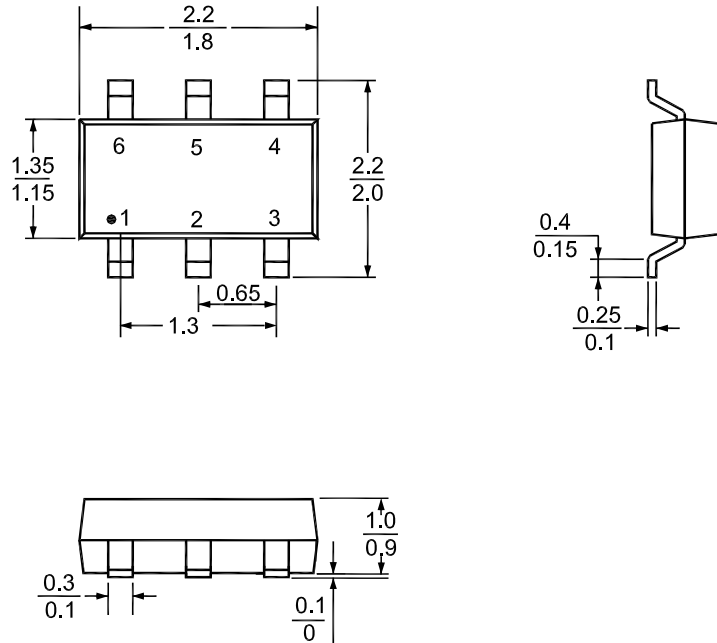
Fig 6. Power Derating Curve



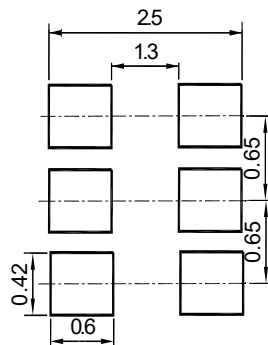
MMDTA431DW

Package Outline Dimensions (Units: mm)

SOT-363



Recommended Soldering Footprint



Packing information

| Package | Tape Width (mm) | Pitch | | Reel Size | | Per Reel Packing Quantity |
|---------|-----------------|---------|---------------|-----------|------|---------------------------|
| | | mm | inch | mm | inch | |
| SOT-363 | 8 | 4 ± 0.1 | 0.157 ± 0.004 | 178 | 7 | 3,000 |

Marking information

"DS" = Part No.
 "YM" = Date Code Marking
 "Y" = Year
 "M" = Month
 Font type: Arial

