

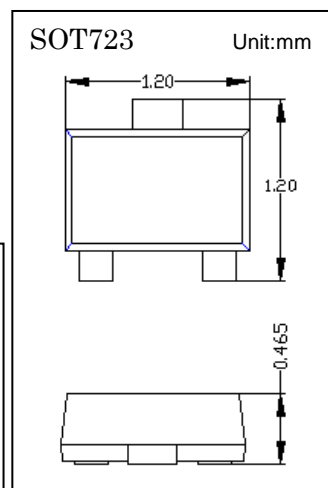
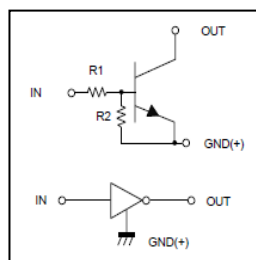
DATA SHEET

DTC114EM

- ◇ Epitaxial planar die construction
- ◇ Operating and Storage Junction Temperatures: -55°C to 150°C
- ◇ RoHS compliant / Green EMC
- ◇ Built-In Biasing Resistors

| Device | Marking |
|----------|---------|
| DTC114EM | 24 |

Equivalent Circuit



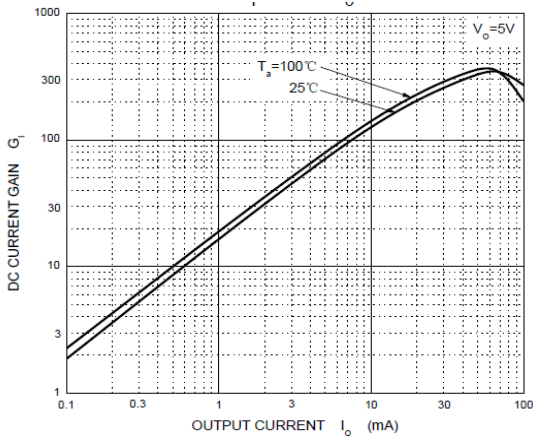
Maximum Ratings ($T_a = 25^{\circ}\text{C}$)

| Symbol | Parameter | Value | Units |
|-----------|----------------------|-----------------|--------------------|
| V_{CC} | Supply Voltage | 50 | V |
| V_{IN} | Input Voltage | $-10 \sim +40$ | V |
| I_o | Output Current | 50 | mA |
| P_D | Power Dissipation | 100 | mW |
| T_j | Junction Temperature | 150 | $^{\circ}\text{C}$ |
| T_{stg} | Storage Temperature | $-55 \sim +150$ | $^{\circ}\text{C}$ |

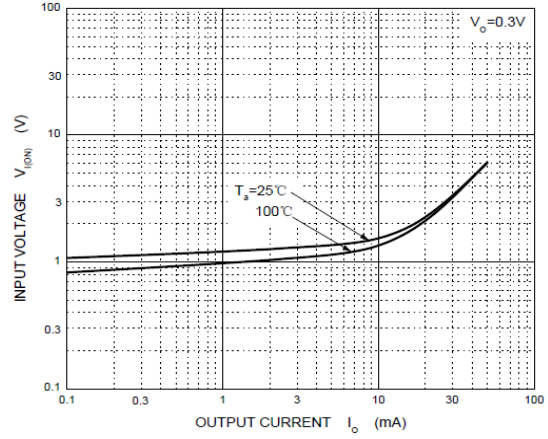
Electrical Characteristics ($T_a = 25^{\circ}\text{C}$)

| Symbol | Parameter | Test Conditions | Min | Typ | Max | Units |
|--------------|----------------------|---------------------------------|-----|-----|------|-----------|
| $V_{I(off)}$ | Input Voltage | $V_{CC}=5V, I_o=100\mu A$ | 0.5 | | | V |
| $V_{I(on)}$ | | $V_o=0.3V, I_o=10mA$ | | | 3 | V |
| $V_{O(on)}$ | Output Voltage | $I_o/I_f=10mA/0.5mA$ | | | 0.3 | V |
| I_i | Input Current | $V_i=5V$ | | | 0.88 | mA |
| $I_{O(off)}$ | Output Current | $V_{CC}=50V, V_i=0$ | | | 0.5 | μA |
| G_i | DC Current Gain | $V_o=5V, I_o=5mA$ | 30 | | | |
| R_1 | Input Resistance | | 7 | 10 | 13 | $k\Omega$ |
| R_2/R_1 | Resistance Ratio | | 0.8 | 1 | 1.2 | |
| f_T | Transition Frequency | $V_{CE}=10V, I_E=5mA, f=100MHz$ | | 250 | | MHz |

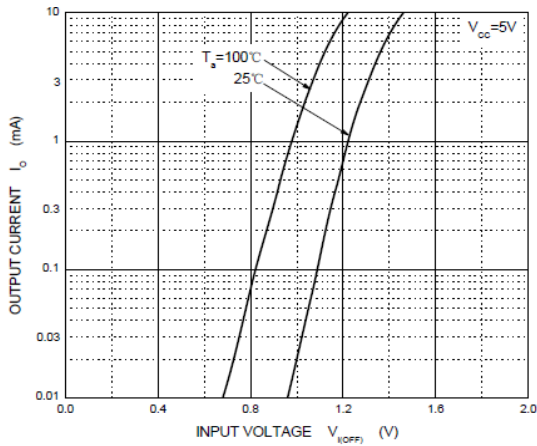
Typical Characteristics



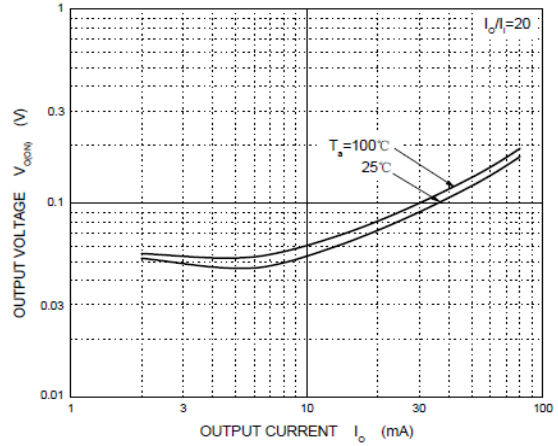
DC Current Gain Characteristics



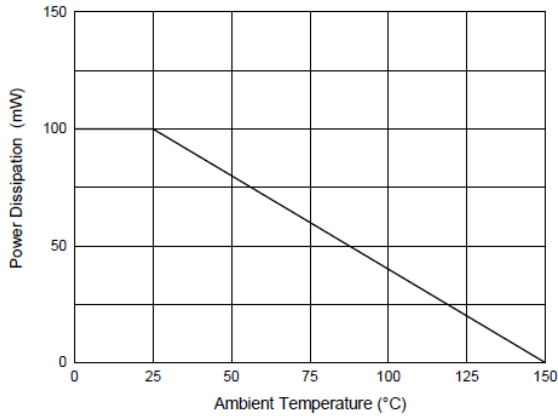
Input Voltage (on) Characteristics



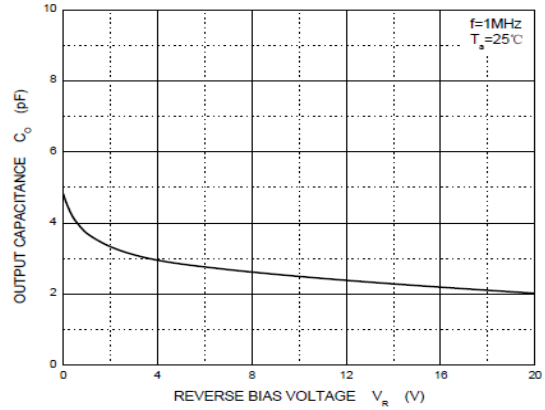
Input Voltage (off) Characteristics



Output Voltage Characteristics



Power Derating Curve



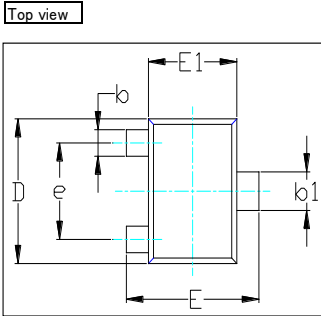
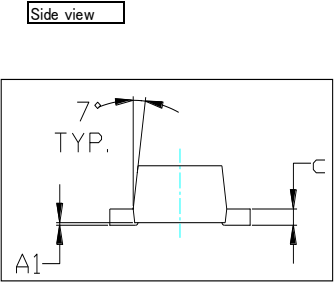
C_o — V_R

Ordering Information

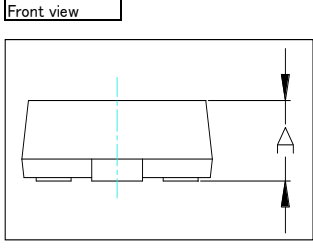
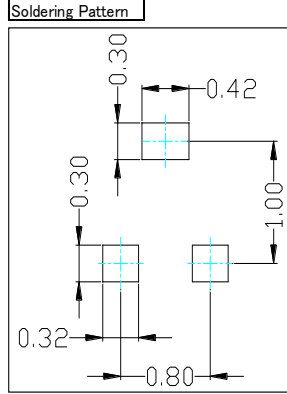
| Device | Package | Shipping | Tape wide | Emboss pitch | Tape specification | Notes |
|----------|---------|---------------------------------|-----------|--------------|--------------------|-------|
| DTC114EM | SOT723 | Tape & Reel 8000pcs /7" Reel | 8mm | 4mm | Conductive | |

Package Dimensions

Package outline : SOT723

| SYMBOL | DIMENSIONS IN MILLIMETER | |
|--------|--------------------------|-------|
| | MIN | MAX |
| A | 0.430 | 0.500 |
| A1 | 0.000 | 0.050 |
| b | 0.170 | 0.270 |
| b1 | 0.270 | 0.370 |
| c | 0.080 | 0.150 |
| D | 1.150 | 1.250 |
| E | 1.150 | 1.250 |
| E1 | 0.750 | 0.850 |
| e | 0.800 TYP. | |
| θ | 0° | 7° |

Notice:

- Lead plating: Pb free solder
- Lead thickness includes solder plating
- Lead frame: CAC-5
- Other Tolerance: ±0.05
- Dimensions are exclusive of Burrs, Mold Flash and Tie Bar extrusions
- Unit: mm

NOTICE

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