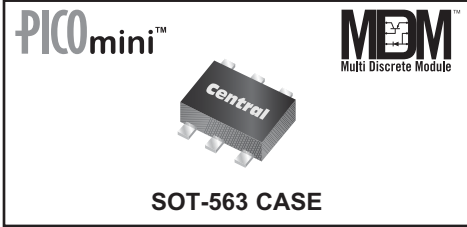


CMLM0705
MULTI DISCRETE MODULE™
 SURFACE MOUNT
 SILICON SWITCHING PNP TRANSISTOR
 AND
 LOW V_F SILICON SCHOTTKY DIODE



www.centrasemi.com



DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMLM0705 is a Multi Discrete Module™ consisting of a single PNP Transistor and a Schottky Diode packaged in a space saving PICOmini™ SOT-563 case. This device is designed for small signal general purpose applications where size and operational efficiency are prime requirements.

- Combination: Small Signal Switching PNP Transistor and Low V_F Schottky Diode.
- Complementary Device: **CMLM2205**

MARKING CODE: C75

MAXIMUM RATINGS - CASE: (T_A=25°C)

Power Dissipation
 Operating and Storage Junction Temperature
 Thermal Resistance

| SYMBOL | | UNITS |
|-----------------------------------|-------------|-------|
| P _D | 350 | mW |
| T _J , T _{stg} | -65 to +150 | °C |
| θ _{JA} | 357 | °C/W |

MAXIMUM RATINGS - Q1: (T_A=25°C)

Collector-Base Voltage
 Collector-Emitter Voltage
 Emitter-Base Voltage
 Continuous Collector Current

| SYMBOL | | UNITS |
|------------------|-----|-------|
| V _{CBO} | 90 | V |
| V _{CEO} | 60 | V |
| V _{EBO} | 6.0 | V |
| I _C | 600 | mA |

MAXIMUM RATINGS - D1: (T_A=25°C)

Peak Repetitive Reverse Voltage
 Continuous Forward Current
 Peak Repetitive Forward Current, tp≤1.0ms
 Peak Forward Surge Current, tp=8.0ms

| SYMBOL | | UNITS |
|------------------|-----|-------|
| V _{RRM} | 40 | V |
| I _F | 500 | mA |
| I _{FRM} | 3.5 | A |
| I _{FSM} | 10 | A |

ELECTRICAL CHARACTERISTICS - Q1: (T_A=25°C unless otherwise noted)

| SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNITS |
|----------------------|---|-----|-------|-----|-------|
| I _{CBO} | V _{CB} =50V | | | 10 | nA |
| I _{CBO} | V _{CB} =50V, T _A =125°C | | | 10 | μA |
| I _{CEV} | V _{CE} =30V, V _{BE} =0.5V | | | 50 | nA |
| BV _{CBO} | I _C =10μA | 90 | 115 | | V |
| BV _{CEO} | I _C =10mA | 60 | | | V |
| BV _{EBO} | I _E =10μA | 5.0 | | | V |
| V _{CE(SAT)} | I _C =150mA, I _B =15mA | | 0.113 | 0.2 | V |
| V _{CE(SAT)} | I _C =500mA, I _B =50mA | | 0.280 | 0.7 | V |
| V _{BE(SAT)} | I _C =150mA, I _B =15mA | | | 1.3 | V |
| V _{BE(SAT)} | I _C =500mA, I _B =50mA | | | 2.6 | V |
| h _{FE} | V _{CE} =10V, I _C =0.1mA | 100 | 205 | | |
| h _{FE} | V _{CE} =10V, I _C =1.0mA | 100 | | | |
| h _{FE} | V _{CE} =10V, I _C =10mA | 100 | | | |
| h _{FE} | V _{CE} =10V, I _C =150mA | 100 | | 300 | |
| h _{FE} | V _{CE} =10V, I _C =500mA | 75 | 110 | | |

R1 (18-January 2010)

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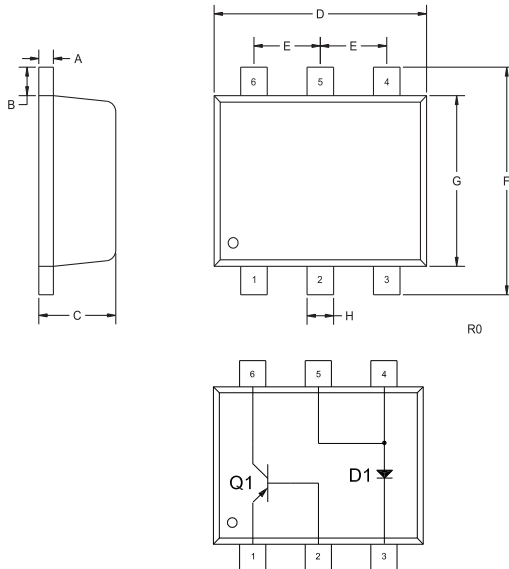
ELECTRICAL CHARACTERISTICS - Q1 - Continued:

| SYMBOL | TEST CONDITIONS | MIN | MAX | UNITS |
|-----------|---|-----|-----|-------|
| f_T | $V_{CE}=20V, I_C=50mA, f=100MHz$ | 200 | | MHz |
| C_{ob} | $V_{CB}=10V, I_E=0, f=1.0MHz$ | | 8.0 | pF |
| C_{ib} | $V_{BE}=2.0V, I_C=0, f=1.0MHz$ | | 30 | pF |
| t_{on} | $V_{CC}=30V, V_{BE}=0.5V, I_C=150mA, I_{B1}=15mA$ | | 45 | ns |
| t_d | $V_{CC}=30V, V_{BE}=0.5V, I_C=150mA, I_{B1}=15mA$ | | 10 | ns |
| t_r | $V_{CC}=30V, V_{BE}=0.5V, I_C=150mA, I_{B1}=15mA$ | | 40 | ns |
| t_{off} | $V_{CC}=6.0V, I_C=150mA, I_{B1}=I_{B2}=15mA$ | | 100 | ns |
| t_s | $V_{CC}=6.0V, I_C=150mA, I_{B1}=I_{B2}=15mA$ | | 80 | ns |
| t_f | $V_{CC}=6.0V, I_C=150mA, I_{B1}=I_{B2}=15mA$ | | 30 | ns |

ELECTRICAL CHARACTERISTICS - D1: ($T_A=25^\circ C$)

| | | | | |
|--------|----------------------|----|------|---------|
| I_R | $V_R=10V$ | | 20 | μA |
| I_R | $V_R=30V$ | | 100 | μA |
| BV_R | $I_R=500\mu A$ | 40 | | V |
| V_F | $I_F=100\mu A$ | | 0.13 | V |
| V_F | $I_F=1.0mA$ | | 0.21 | V |
| V_F | $I_F=10mA$ | | 0.27 | V |
| V_F | $I_F=100mA$ | | 0.35 | V |
| V_F | $I_F=500mA$ | | 0.47 | V |
| C_T | $V_R=1.0V, f=1.0MHz$ | | 50 | pF |

SOT-563 CASE - MECHANICAL OUTLINE



| SYMBOL | DIMENSIONS | | | |
|--------|------------|-------|-------------|------|
| | INCHES | | MILLIMETERS | |
| | MIN | MAX | MIN | MAX |
| A | 0.004 | 0.007 | 0.10 | 0.18 |
| B | 0.008 | | 0.20 | |
| C | 0.022 | 0.024 | 0.56 | 0.60 |
| D | 0.059 | 0.067 | 1.50 | 1.70 |
| E | 0.020 | | 0.50 | |
| F | 0.061 | 0.067 | 1.55 | 1.70 |
| G | 0.047 | | 1.20 | |
| H | 0.006 | 0.012 | 0.15 | 0.30 |

SOT-563 (REV: R0)

LEAD CODE:

- 1) Emitter Q1
- 2) Base Q1
- 3) Cathode D1
- 4) Anode D1
- 5) Anode D1
- 6) Collector Q1

MARKING CODE: C75

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