

# isc Silicon NPN Darlington Power Transistor

## MN638S

### DESCRIPTION

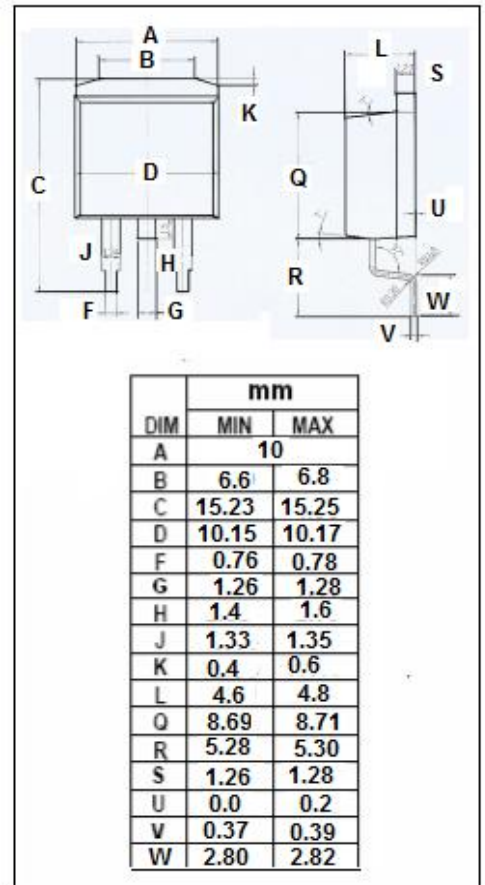
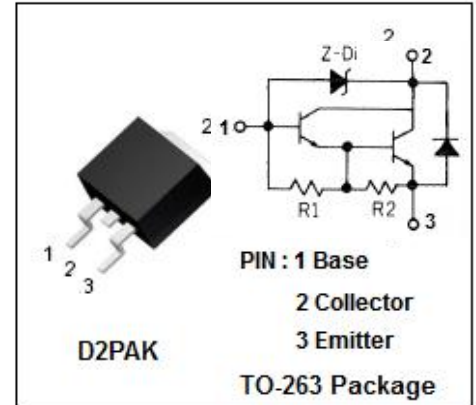
- Low Collector Saturation Voltage
- High DC Current Gain
- High Reliability
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

### APPLICATIONS

- Audio power amplifiers
- Relay & solenoid drivers
- Motor controls
- General purpose power amplifiers

### ABSOLUTE MAXIMUM RATINGS( $T_a=25^\circ\text{C}$ )

| SYMBOL    | PARAMETER   | VALUE   | UNIT             |
|-----------|---|---------|------------------|
| $V_{CBO}$ | Collector-Base Voltage                                  | 330-430 | V                |
| $V_{CEO}$ | Collector-Emitter Voltage                               | 330-430 | V                |
| $V_{EBO}$ | Emitter-Base Voltage                                    | 6       | V                |
| $I_C$     | Collector Current-Continuous                            | 6       | A                |
| $I_{CM}$  | Collector Current-Peak                                  | 10      | A                |
| $I_B$     | Base Current-Continuous                                 | 1       | A                |
| $P_C$     | Collector Power Dissipation<br>@ $T_c=25^\circ\text{C}$ | 60      | W                |
| $T_J$     | Junction Temperature                                    | 150     | $^\circ\text{C}$ |
| $T_{stg}$ | Storage Temperature Range                               | -55~150 | $^\circ\text{C}$ |



**isc Silicon NPN Darlington Power Transistor****MN638S****ELECTRICAL CHARACTERISTICS****T<sub>c</sub>=25°C unless otherwise specified**

| SYMBOL               | PARAMETER                            | CONDITIONS                                 | MIN  | TYP. | MAX | UNIT |
|----------------------|--------------------------------------|--|------|------|-----|------|
| V <sub>(BR)EBO</sub> | Emitter-Base Breakdown Voltage       | I <sub>E</sub> = 20mA; I <sub>C</sub> = 0  | 6    |      |     | V    |
| V <sub>(BR)CEO</sub> | Collector-Emitter Breakdown Voltage  | I <sub>C</sub> = 25mA ; I <sub>B</sub> = 0 | 330  |      | 430 | V    |
| V <sub>CE(sat)</sub> | Collector-Emitter Saturation Voltage | I <sub>C</sub> = 4A; I <sub>B</sub> = 20mA |      |      | 1.5 | V    |
| I <sub>CBO</sub>     | Collector Cutoff Current             | V <sub>CB</sub> = 330V; I <sub>E</sub> = 0 |      |      | 10  | uA   |
| I <sub>EBO</sub>     | Emitter Cutoff Current               | V <sub>EB</sub> = 6V; I <sub>C</sub> =0    |      |      | 20  | mA   |
| h <sub>FE</sub>      | DC Current Gain                      | I <sub>C</sub> = 3A; V <sub>CE</sub> = 2V  | 1500 |      |     |      |

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