# SMBTA56E6327HTSA1 Datasheet


https://www.DiGi-Electronics.com

| | |
|---|---|
| DiGi Electronics Part Number | SMBTA56E6327HTSA1-DG |
| Manufacturer | Infineon Technologies |
| Manufacturer Product Number | SMBTA56E6327HTSA1 |
| Description | TRANS PNP 80V 0.5A SOT-23 |
| Detailed Description | Bipolar (BJT) Transistor PNP 80 V 500 mA 100MHz 330 mW Surface Mount PG-SOT23 |

Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

## Purchase and inquiry

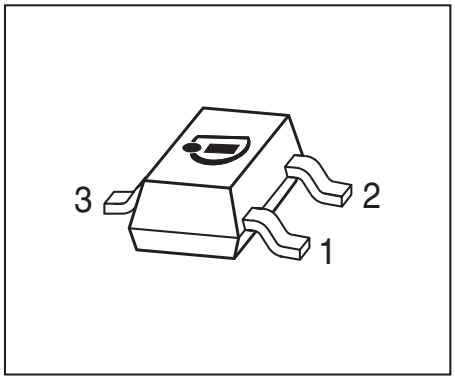
| Manufacturer Product Number: | Manufacturer: |
| --- | --- |
| SMBTA56E6327HTSA1 | Infineon Technologies |
| Series: | Product Status: |
| - | Last Time Buy |
| Transistor Type: | Current - Collector (Ic) (Max): |
| PNP | 500 mA |
| Voltage - Collector Emitter Breakdown (Max): | Vce Saturation (Max) @ Ib, Ic: |
| 80 V | 250mV @ 10mA, 100mA |
| Current - Collector Cutoff (Max): | DC Current Gain (hFE) (Min) @ Ic, Vce: |
| 100nA | 100 @ 100mA, 1V |
| Power - Max: | Frequency - Transition: |
| 330 mW | 100MHz |
| Operating Temperature: | Mounting Type: |
| 150°C (TJ) | Surface Mount |
| Package / Case: | Supplier Device Package: |
| TO-236-3, SC-59, SOT-23-3 | PG-SOT23 |
| Base Product Number: | |
| SMBTA56 | |

## Environmental & Export classification

| RoHS Status: | Moisture Sensitivity Level (MSL): |
| --- | --- |
| ROHS3 Compliant | 1 (Unlimited) |
| REACH Status: | ECCN: |
| REACH Unaffected | EAR99 |
| HTSUS: | |
| 8541.21.0075 | |

# SMBTA56/MMBTA56

## PNP Silicon AF Transistor




- Low collector-emitter saturation voltage
- Complementary type: SMBTA06 / MMBTA06(NPN)
- Pb-free (RoHS compliant) package
- Qualified according AEC Q101

AEC Qualified RoHS

| Type | Marking | Pin Configuration | | | Package |
|---|---|---|---|---|---|
| SMBTA56/MMBTA56 | s2G | 1=B | 2=E | 3=C | SOT23 |

**Maximum Ratings**

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Collector-emitter voltage | $V_{CEO}$ | 80 | V |
| Collector-base voltage | $V_{CBO}$ | 80 | |
| Emitter-base voltage | $V_{EBO}$ | 4 | |
| Collector current | $I_C$ | 500 | mA |
| Peak collector current, $t_p \leq 10$ ms | $I_{CM}$ | 1 | A |
| Base current | $I_B$ | 100 | mA |
| Peak base current | $I_{BM}$ | 200 | |
| Total power dissipation- $T_S \leq 79$°C | $P_{tot}$ | 330 | mW |
| Junction temperature | $T_j$ | 150 | °C |
| Storage temperature | $T_{stg}$ | -65 ... 150 | |

**Thermal Resistance**

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Junction - soldering point[1)] | $R_{thJS}$ | ≤ 215 | K/W |

[1]For calculation of $R_{thJA}$ please refer to Application Note AN077 (Thermal Resistance Calculation)

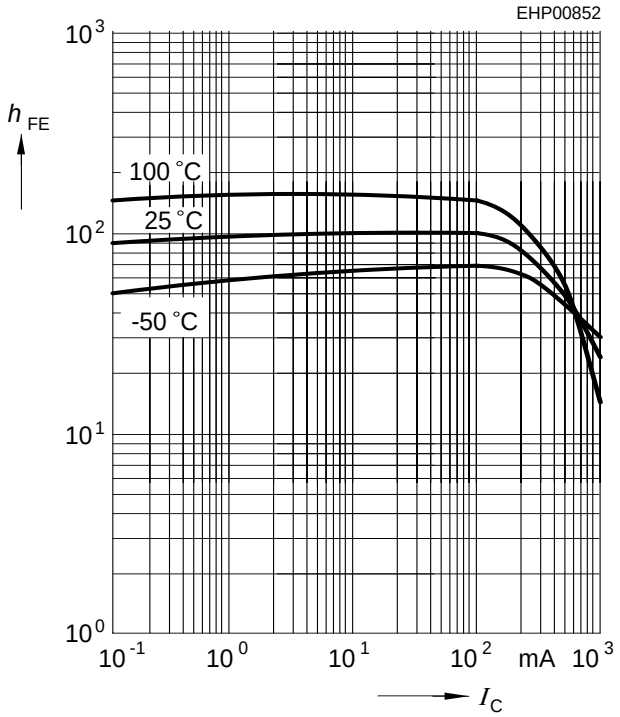
**Electrical Characteristics** at $T_A$ = 25°C, unless otherwise specified

| Parameter | Symbol | Values | | | Unit |
|---|---|---|---|---|---|
| | | min. | typ. | max. | |
| **DC Characteristics** | | | | | |
| Collector-emitter breakdown voltage<br>$I_C$ = 1 mA, $I_B$ = 0 | $V_{(BR)CEO}$ | 80 | - | - | V |
| Collector-base breakdown voltage<br>$I_C$ = 100 µA, $I_E$ = 0 | $V_{(BR)CBO}$ | 80 | - | - | |
| Emitter-base breakdown voltage<br>$I_E$ = 10 µA, $I_C$ = 0 | $V_{(BR)EBO}$ | 4 | - | - | |
| Collector-base cutoff current<br>$V_{CB}$ = 80 V, $I_E$ = 0<br>$V_{CB}$ = 80 V, $I_E$ = 0 , $T_A$ = 150 °C | $I_{CBO}$ | <br>-<br>- | <br>-<br>- | <br>0.1<br>20 | µA |
| Collector-emitter cutoff current<br>$V_{CE}$ = 60 V, $I_B$ = 0 | $I_{CEO}$ | - | - | 0.1 | |
| DC current gain[1)]<br>$I_C$ = 10 mA, $V_{CE}$ = 1 V<br>$I_C$ = 100 mA, $V_{CE}$ = 1 V | $h_{FE}$ | <br>100<br>100 | <br>-<br>- | <br>-<br>- | - |
| Collector-emitter saturation voltage[1)]<br>$I_C$ = 100 mA, $I_B$ = 10 mA | $V_{CEsat}$ | - | - | 0.25 | V |
| Base-emitter voltage[1)]<br>$I_C$ = 100 mA, $V_{CE}$ = 1 V | $V_{BE(ON)}$ | - | - | 1.2 | |
| **AC Characteristics** | | | | | |
| Transition frequency<br>$I_C$ = 20 mA, $V_{CE}$ = 5 V, $f$ = 20 MHz | $f_T$ | - | 100 | - | MHz |
| Collector-base capacitance<br>$V_{CB}$ = 10 V, $f$ = 1 MHz | $C_{cb}$ | - | 7 | - | pF |

[1]Pulse test: t < 300µs; D < 2%

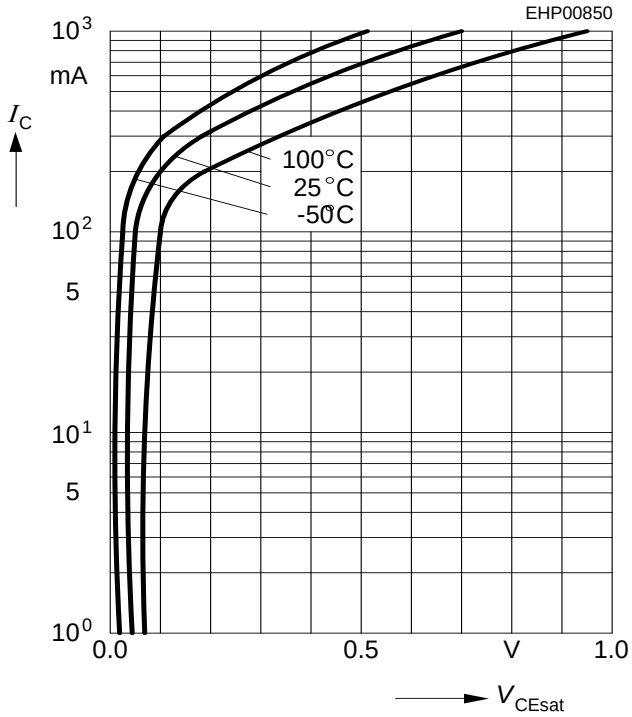
**DC current gain $h_{FE} = f(I_C)$**

$V_{CE}$ = 1 V



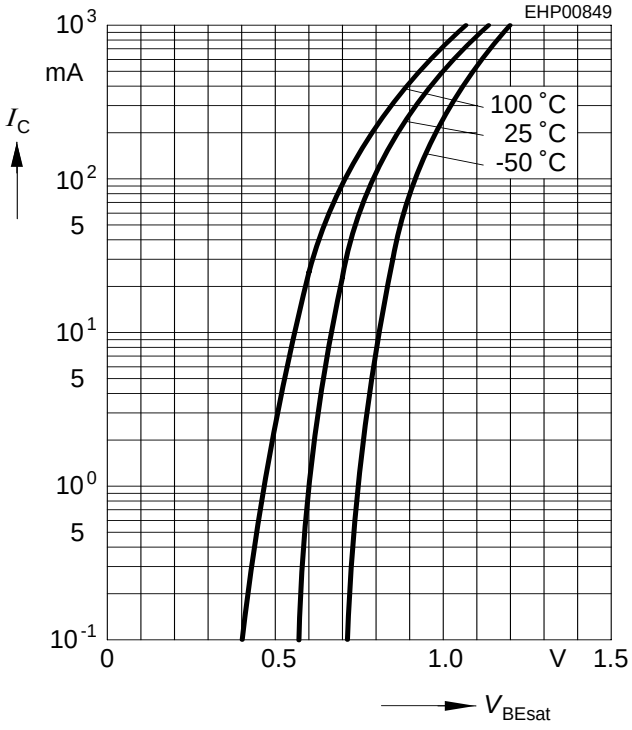

**Collector-emitter saturation voltage**

$I_C = f(V_{CEsat})$, $h_{FE}$ = 10



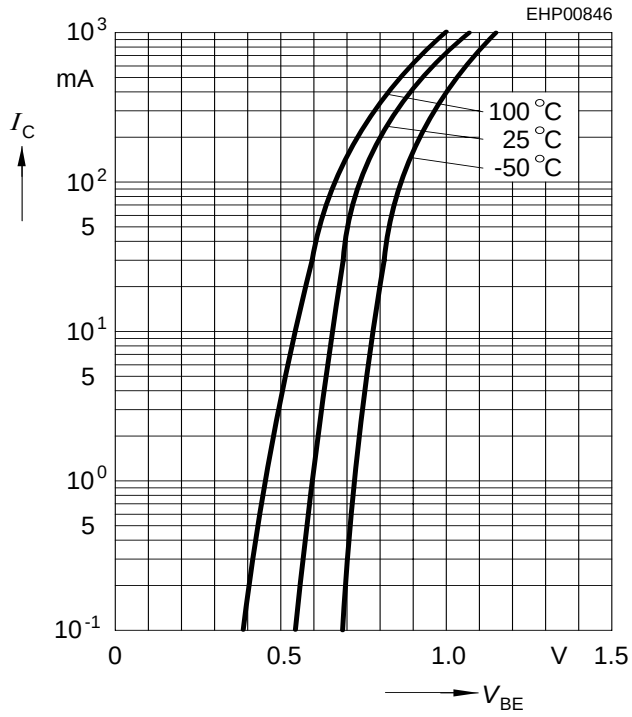

**Base-emitter saturation voltage**

$I_C = f(V_{BEsat})$, $h_{FE}$ = 10



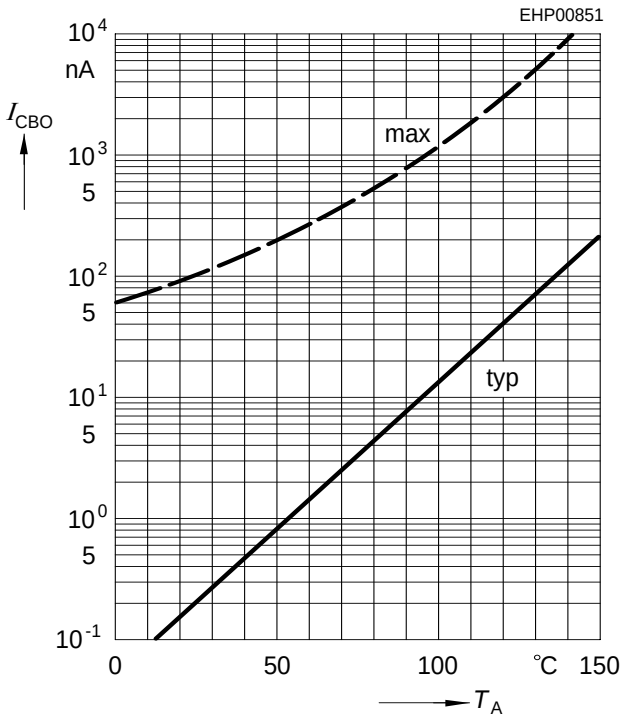

**Collector current $I_C = f(V_{BE})$**

$V_{CE}$ = 1V



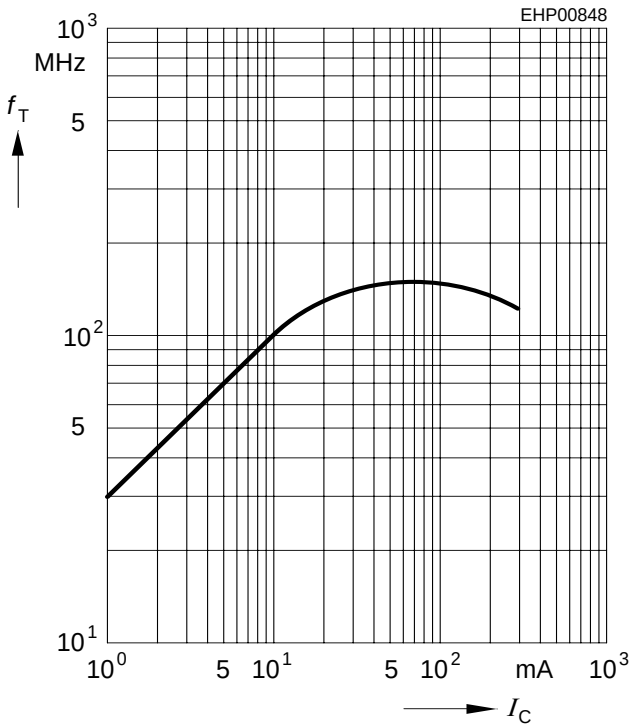
**Collector cutoff current $I_{CBO}$ = $f(T_A)$**

$V_{CB}$ = 80 V



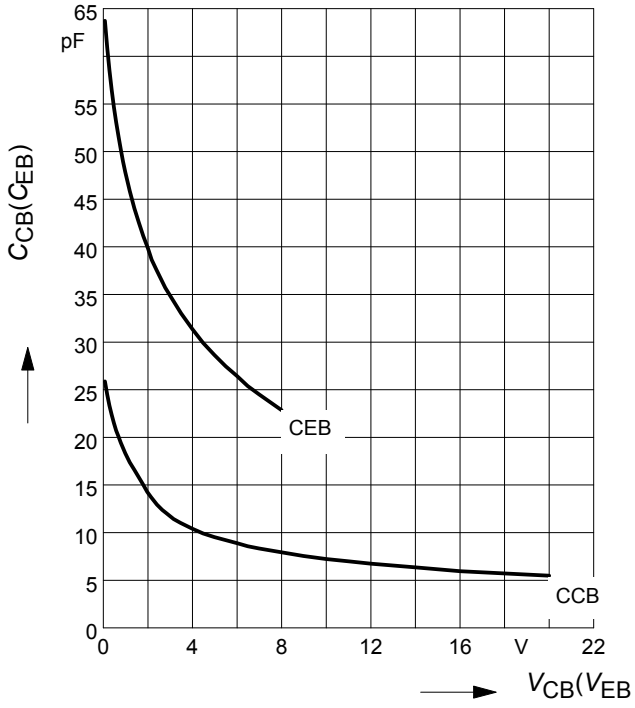

**Transition frequency $f_T$ = $f(I_C)$**

$V_{CE}$ = parameter in V, $f$ = 2 GHz

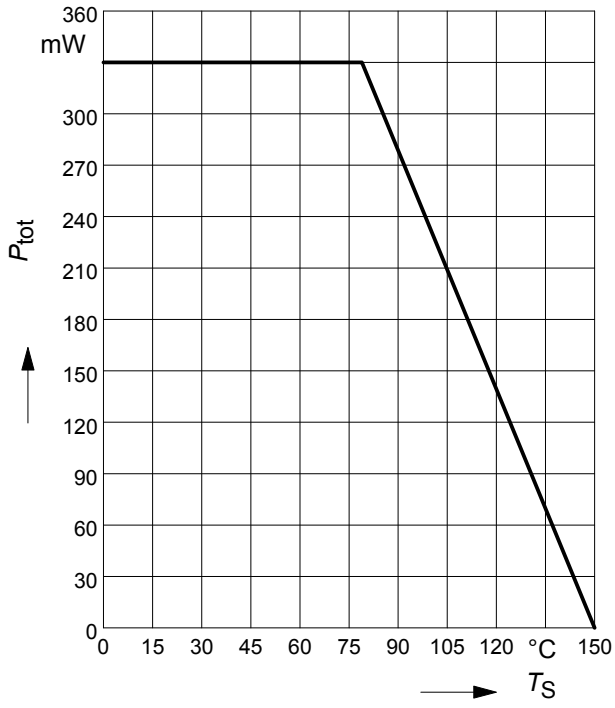



**Collector-base capacitance $C_{cb}$ = $f(V_{CB})$**

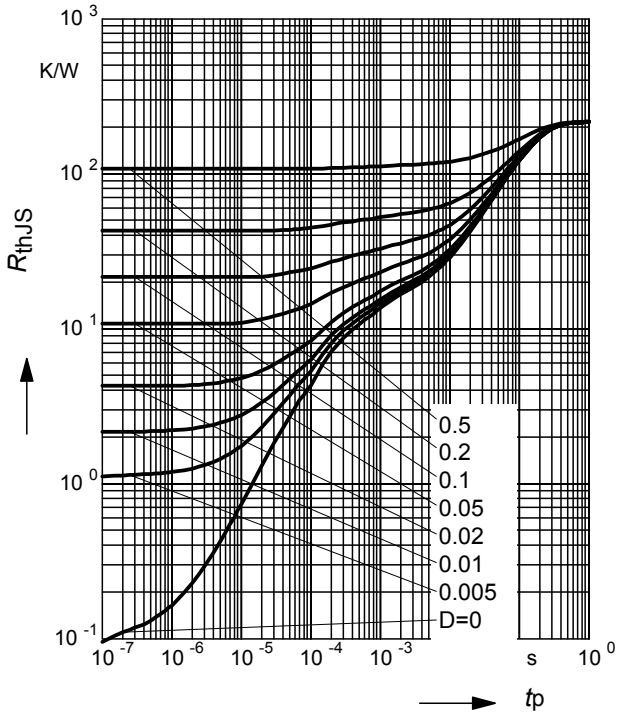
**Emitter-base capacitance $C_{eb}$ = $f(V_{EB})$**




**Total power dissipation $P_{tot}$ = $f(T_S)$**

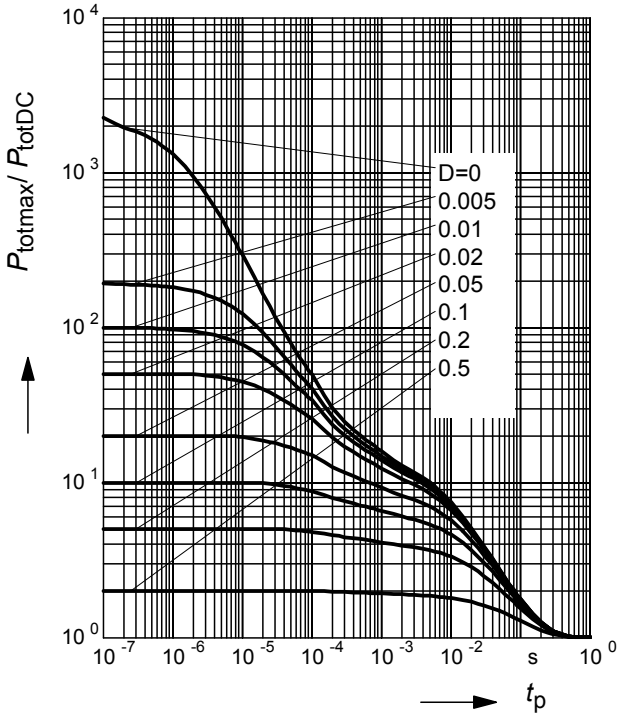


**Permissible Pulse Load** $R_{thJS} = f(t_p)$

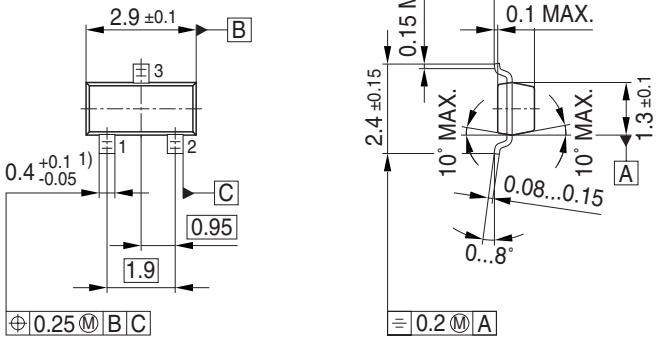



**Permissible Pulse Load**

$P_{totmax}/P_{totDC} = f(t_p)$

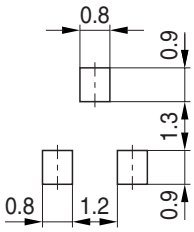


## Package Outline

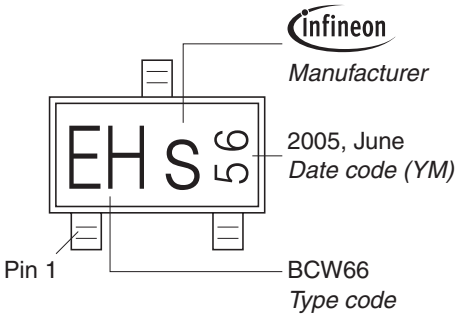



1) Lead width can be 0.6 max. in dambar area

## Foot Print

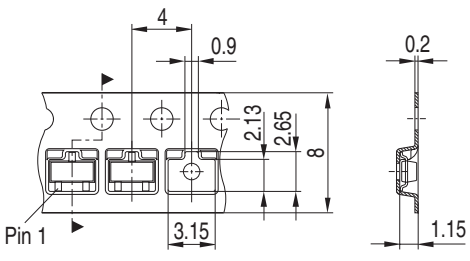



## Marking Layout (Example)




## Standard Packing

Reel ø180 mm = 3.000 Pieces/Reel
Reel ø330 mm = 10.000 Pieces/Reel



**Edition 2009-11-16**

**Published by**
**Infineon Technologies AG**
**81726 Munich, Germany**



## Legal Disclaimer

The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics. With respect to any examples or hints given herein, any typical values stated herein and/or any information regarding the application of the device, Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind, including without limitation, warranties of non-infringement of intellectual property rights of any third party.

## Information

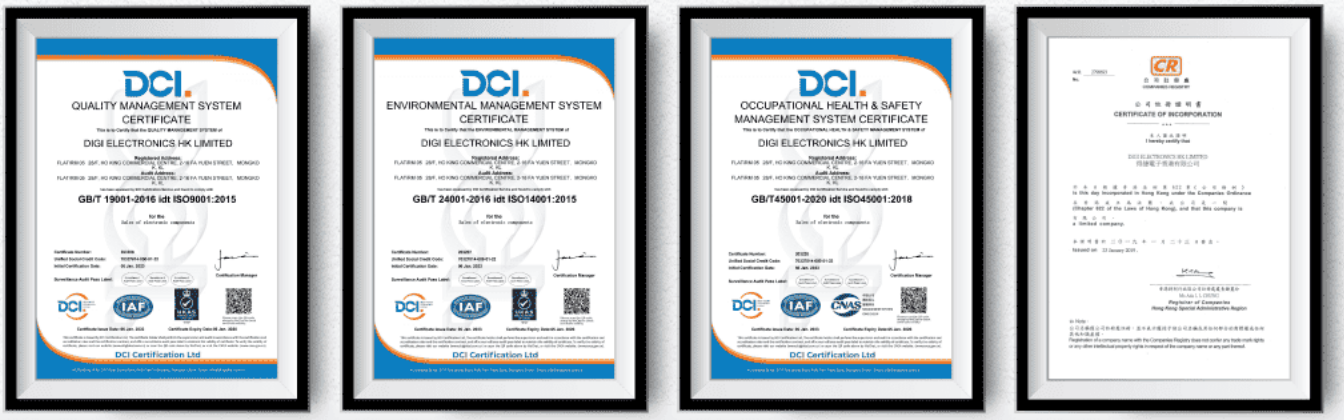
For further information on technology, delivery terms and conditions and prices, please contact the nearest Infineon Technologies Office (<www.infineon.com>).

## Warnings

Due to technical requirements, components may contain dangerous substances. For information on the types in question, please contact the nearest Infineon Technologies Office.
Infineon Technologies components may be used in life-support devices or systems only with the express written approval of Infineon Technologies, if a failure of such components can reasonably be expected to cause the failure of that life-support device or system or to affect the safety or effectiveness of that device or system. Life support devices or systems are intended to be implanted in the human body or to support and/or maintain and sustain and/or protect human life. If they fail, it is reasonable to assume that the health of the user or other persons may be endangered.

# OUR CERTIFICATE

DiGi provide top-quality products and perfect service for customer worldwide through standardization, technological innovation and continuous improvement.  DiGi through third-party certification, we striciy control the quality of products and services. Welcome your RFQ to Email: Info@DiGi-Electronics.com





Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

DiGi is a global authorized distributor of electronic components.