VRW0696 ḾḾÞ QSQ ÆṀч s ‖ ㄱ Grxe℗h silicon NPN transistor in a SOT-363 Plastic Package.

ﻮ Ↄ ‖ Ↄ ㄴ ı ز 933 p D ṇ ƒ ß
Collector currents up to 600 mA.

| v ‴Ọ<br>Parameter | ϒ N<br>Symbol | ‴Ọ Ö<br>Rating | D Ꮋ<br>Unit |
|---|---|---|---|
| Collector to Base Voltage | $V_{CBO}$ | 75 | V |
| Collector to Emitter Voltage | $V_{CEO}$ | 40 | V |
| Emitter to Base Voltage | $V_{EBO}$ | 6.0 | V |
| Collector Current | $I_C$ | 600 | mA |
| Total Package Dissipation Note1 | $P_D$ | 150 | mW |
| Junction Temperature | $T_j$ | -55 +150 | |
| Storage Temperature Range | $T_{stg}$ | -55 +150 | |

Note1 χ Device mounted on FR4 glass epoxy printed circuit board using the minimum recommended footprint.

| v ‴Ọ<br>Parameter | ϒ N<br>Symbol | ‗ ː† Ţ<br>Test Conditions | ώ ṇ Ö<br>Min | Ɛ ʒ Ö<br>Typ | ώ ᶻ Ö<br>Max | D Ꮋ<br>Unit |
|---|---|---|---|---|---|---|
| Collector Base Breakdown Voltage | $V_{CBO}$ | $I_C$ =10ƤA $I_E$=0 | 75 | | | V |
| Collector Emitter Breakdown Voltage | $V_{CEO}$ | $I_C$ =10mA $I_B$ = 0 | 40 | | | V |
| Emitter Base Breakdown Voltage | $V_{EBO}$ 6 | | | | | |

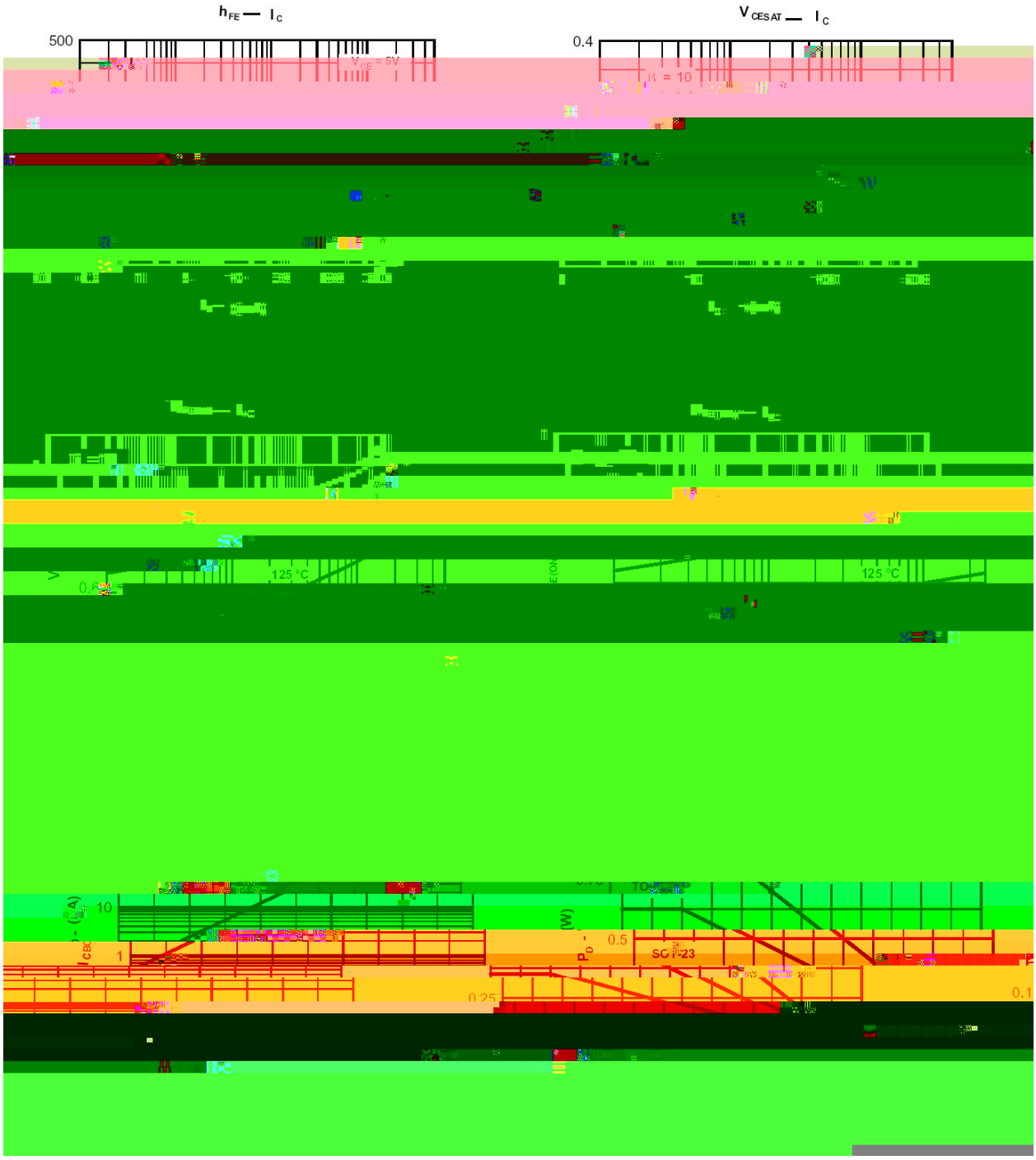
Collector Cut-Off Current

## / Electrical Characteristics(Ta=25 )

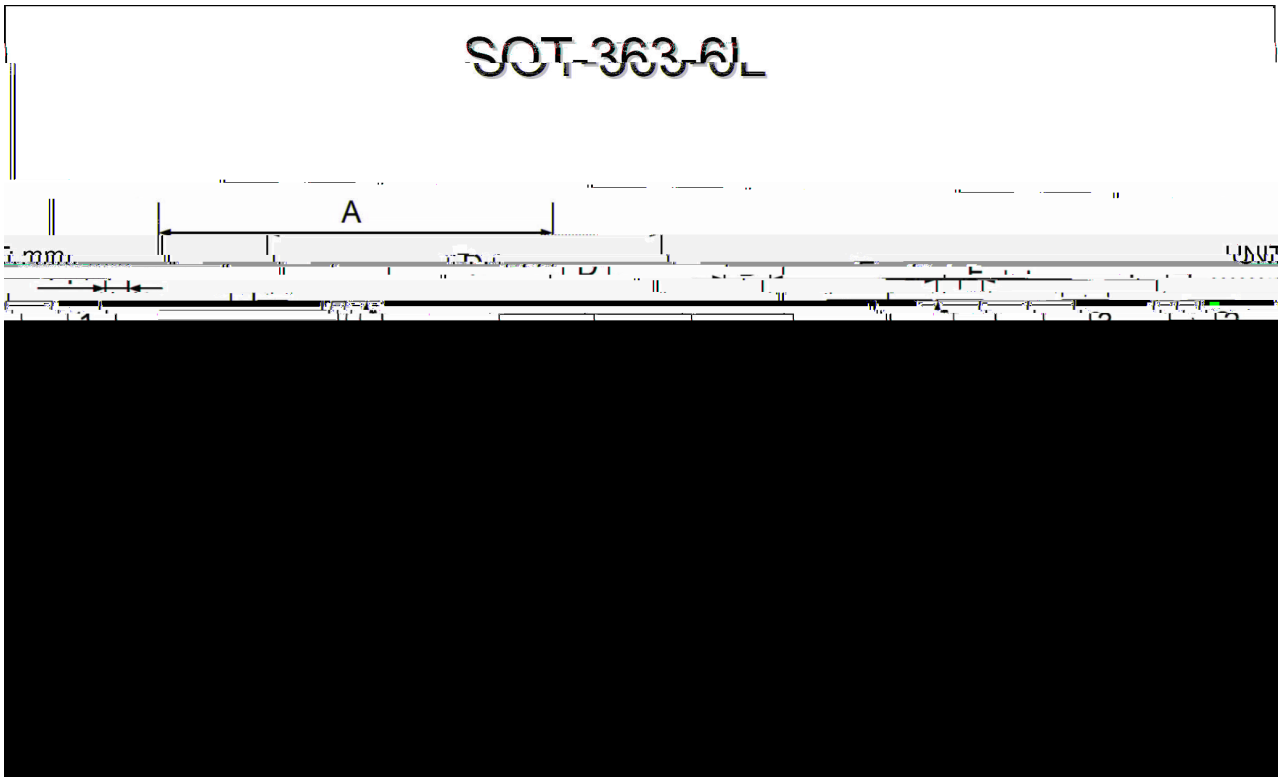
| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ (1) | $I_C$=150mA $I_B$=15mA | | | 0.3 | V |
| | $V_{CE(sat)}$ (2) | $I_C$=500mA $I_B$=50mA | | | 1.0 | V |
| Base-Emitter Saturation Voltage | $V_{BE(sat)}$ (1) | $I_C$=150mA $I_B$=15mA | 0.6 | | 1.2 | V |
| | $V_{BE(sat)}$ (2) | $I_C$=500mA $I_B$=50mA | | | 2.0 | V |
| Transition Frequency(Note 3) | $f_T$ | $V_{CE}$=20V $I_C$=20mA f=100MHz | 300 | | | MHz |
| Output Capacitance | $C_{ob}$ | $V_{CB}$=10V $I_E$=0 f=1.0MHz | | | 8.0 | pF |
| Input Capacitance | $C_{ib}$ | $V_{EB}$=0.5V $I_C$=0 f=1.0MHz | | | 25 | |
| Input Impedance | $h_{ie}$ | $I_C$=1.0mA $V_{CE}$=10V f =1.0kHz | 2.0 | | 8.0 | kЃ |
| | | $I_C$=10mA $V_{CE}$=10V f=1.0kHz | 0.25 | | 1.25 | |
| Voltage Feedback Ratio | $h_{re}$ | $I_C$=1.0mA $V_{CE}$=10V f=1.0kHz | | | 8.0 | $X^{10-4}$ |
| | | $I_C$=10mA $V_{CE}$=10V f=1.0kHz | | | 4.0 | |
| Small Signal Current Gain | $h_{fe}$ | $I_C$=1.0mA $V_{CE}$=10V f=1.0kHz | 50 | | 300 | - |
| | | $I_C$=10mA $V_{CE}$=10V f=1.0kHz | 75 | | 375 | - |
| Output Admittance | $h_{oe}$ | $I_C$=1.0Ma $V_{CE}$=10V f=1.0kHz | 5.0 | | 35 | Ƥmhos |
| | | $I_C$=10mA $V_{CE}$=10V f=1.0kHz | 25 | | 200 | |
| Collector Base Time Constant | $r_b$, $C_c$ | $I_E$=20mA $V_{CB}$=20V f =31.8MHz | | | 150 | Ps |
| Noise Figure | NF | $I_C$=100ƤA $V_{CE}$=10V $R_S$=1.0kЃ f=1.0 kHz | | | 4.0 | dB |
| Turn-on Time | $t_d$ | $V_{CC}$=30V $I_C$=150mA $V_{BE(OFF)}$=-0.5V $I_{B1}$=15mA | | | 10 | ns |
| Storage Time | $t_r$ | | | | 25 | ns |
| | $t_s$ | $V_{CC}$=30V $I_C$=150mA $I_{B1}$=$I_{B2}$=15mA | | | 225 | ns |
| Fall Time | $t_f$ | | | | 60 | ns |

Note2 . Pulse Test: Pulse Width 300Ƥs, Duty Cycle 2.0%.
Note3:$f_T$ is defined as the frequency at which $|h_{fe}|$ extrapolates to unity.

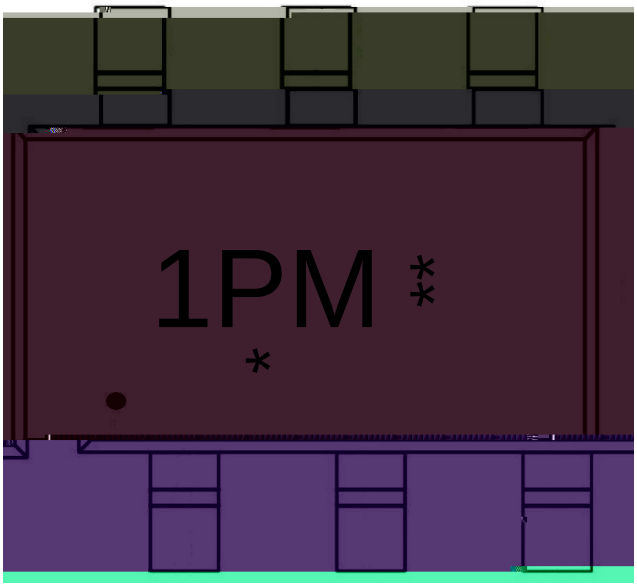
## / Electrical Characteristic Curve



## / Package Dimensions



## / Marking Instructions




| | |
|---|---|
| ● | 1 |
| 4SP | 2 |
| --- | 3 |

Note:

| | |
|---|---|
| ● | 1 Sq |
| 4SP | Product Type Code |
| --- | Lot No. Code, code change with Lot No. |