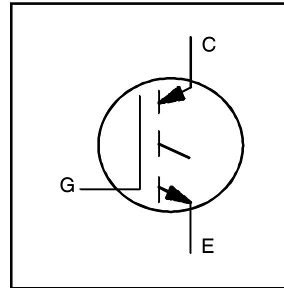
International
IOR Rectifier

IRGC100B120UB

Die in Wafer Form



1200V
$I_{C(nom)}$= 100A
$V_{CE(on)\ typ.}$= 3.1V @
$I_{C(nom)}$ @ 25°C
UltraFast IGBT
Short Circuit Rated
150mm Wafer

Features

- GEN5 Non Punch Through (NPT) Technology
- Low $V_{CE(on)}$
- 10µs Short Circuit Capability
- Square RBSOA
- Positive $V_{CE(on)}$ Temperature Coefficient

Benefits

- Benchmark Efficiency above 20KHz
- Optimized for Welding, UPS, and Induction Heating
- Rugged with Ultra Fast Performance
- Excellent Current Sharing in Parallel Operation

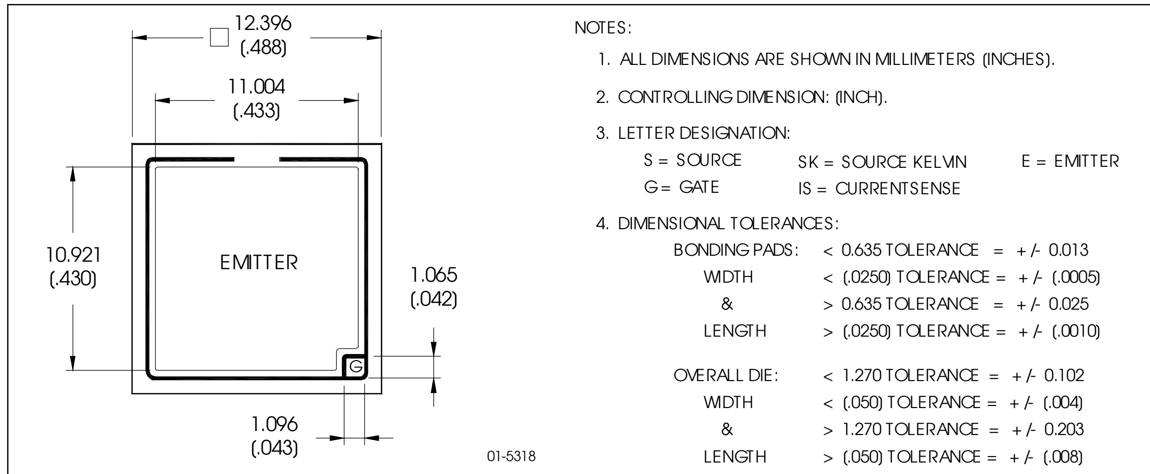
Electrical Characteristics (Wafer Form) ②

Parameter	Description	Guaranteed (min, max)	Test Conditions
$V_{CE\ (on)}$	Collector-to-Emitter Saturation Voltage	1.37V min, 1.58V max	I_C = 10A, T_J = 25°C, V_{GE} = 15V
$V_{(BR)CES}$	Colletor-to-Emitter Breakdown Voltage	1200V min	T_J = 25°C, I_{CES} = 1mA, V_{GE} = 0V ①
$V_{GE(th)}$	Gate Threshold Voltage	4.4V min, 6.0V max	V_{GE} = V_{CE} , T_J =25°C, I_C = 1mA
I_{CES}	Zero Gate Voltage Collector Current	40µA max	T_J = 25°C, V_{CE} = 1200V
I_{GES}	Gate-to-Emitter Leakage Current	± 3 µA max	T_J = 25°C, V_{GE} = +/-20V

Mechanical Data

Nominal Backmetal Composition, (Thickness)	Al - Ti - Ni/V - Ag, (1kA - 1kA - 4kA - 6kA)
Nominal Front Metal Composition, (Thickness)	99% Al/1% Si, (4µm)
Dimensions	0.488" x 0.488"
Wafer Diameter	150mm, with std. < 100 > flat
Wafer Thickness, Tolerance	185µm, +/-15µm
Relevant Die Mechanical Dwg. Number	01-5318
Minimum Street Width	100µm
Reject Ink Dot Size	0.25mm diameter minimum
Ink Dot Location	Consistent throughout same wafer lot
Recommended Storage Environment	Store in original container, in dessicated nitrogen, with no contamination
Recommended Die Attach Conditions	For optimum electrical results, die attach temperature should not exceed 300°C

Die Outline



Additional Testing and Screening

For Customers requiring product supplied as Known Good Die (KGD) or requiring specific die level testing, please contact your local IR Sales.

Shipping

Three shipping options are offered.

- Un-sawn wafer
- Die in waffle pack (consult the IR Die Sales team for availability)
- Die on film (consult the IR Die Sales team for availability)

Tape and Reel is also available for some products. Please consult your local IR sales office or email http://die.irf.com for additional information.
Please specify your required shipping option when requesting prices and ordering Die product. If not specified, Un-sawn wafer will be assumed.

Handling

- Product must be handled only at ESD safe workstations. Standard ESD precautions and safe work environments are as defined in MIL-HDBK-263.
- Product must be handled only in a class 10,000 or better-designated clean room environment.
- Singulated die are not to be handled with tweezers. A vacuum wand with a non-metallic ESD protected tip should be used.

Wafer/Die Storage

- Proper storage conditions are necessary to prevent product contamination and/or degradation after shipment.
- Un-sawn wafers and singulated die can be stored for up to 12 months when in the original sealed packaging at room temperature (45% +/- 15% RH controlled environment).
- Un-sawn wafers and singulated die that have been opened can be stored when returned to their containers and placed in a Nitrogen purged cabinet, at room temperature (45% +/- 15% RH controlled environment).
- Note: To reduce the risk of contamination or degradation, it is recommended that product not being used in the assembly process be returned to their original containers and resealed with a vacuum seal process.
- Sawn wafers on a film frame are intended for immediate use and have a limited shelf life.
- Die in Surf Tape type carrier tape are intended for immediate use and have a limited shelf life. This is primarily due to the nature of the adhesive tape used to hold the product in the carrier tape cavity. This product can be stored for up to 30 days. This applies whether or not the material has remained in its original sealed container.

Further Information

For further information please contact your local IR Sales office or email your enquiry to http://die.irf.com

Note:

① This IR product is100% tested at wafer level and is manufactured using established, mature and well characterized processes. Due to restrictions in die level processing, die may not be equivalent to standard package products and are therefore offered with a conditional performance guarantee. The above data sheet is based on IR sample testing under certain predetermined and assumed conditions, and are provided for illustration purposes only. Customers are encouraged to perform testing in actual proposed packaged and use conditions. IR die products are tested using IR-based quality assurance procedures and are manufactured using IR's established processes. Programs for customer-specified testing are available upon request. IR has experienced assembly yields of generally 95% or greater for individual die; however, customer's results will vary. Estimates such as those described and set forth in this data sheet for semiconductor die will vary depending on a number of packaging, handling, use and other factors. Sold die may not perform on an equivalent basis to standard package products and are therefore offered with a limited warranty as described in IR's applicable standard terms and conditions of sale. All IR die sales are subject to IR's applicable standard terms and conditions of sale, which are available upon request.
For customers requiring a particular parameter to be guaranteed, special testing can be carried out or product can be purchased as known good die.

② Part number shown is for die in wafer. Contact factory for these other options.

Data and specifications subject to change without notice.
This product has been designed and qualified for Industrial market.
Qualification Standards can be found on IR's Web site.

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