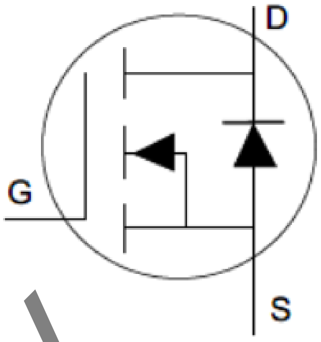
IRFC65R190CDV

650V CoolMOS™ CFD7A Power Mosfet

RPD-98037

Features

- Lowest FOM $R_{DS(ON)}$ x Qg and $R_{DS(ON)}$ x Eoss
- 100% avalanche tested
- Kelvin source connection



Potential applications

- Power Factor Correction (PFC)
- DC- DC hard and soft switching converter
- Battery charger

Product validation

AEC-Q101

Description

650V CoolMOS™ CFD7A from IR HiRel (an Infineon Technologies Company)has the lowest Figure of Merit (FOM) with integrated fast body diode with low Qrr. The device is suitable for PFC and DC-DC converter in hard and soft switching topologies.

Preliminary

Ordering Information

Table 1 **Ordering Options**

Part Number	Package	Screening Level	Operating Temperature [1]
IRFC65R190CDV	Die	Visual Inspection	-40°C to 150°C

Note (1): Characterized in a PG-TO-263-7-11 package

Table of contents

Preliminary

1 Electrical Characteristics

1.1 Absolute Maximum Ratings [1]

Symbol	Parameter	Max.	Units
I_D @ T_C=25°C	Continuous Drain Current, V_{GS}@ 10V	14	A
I_D @ T_C=100°C	Continuous Drain Current, V_{GS}@ 10V	9	A
V_{GS}	Gate to Source Voltage	±20	V
T_J	Junction Temperature	-40 to +150	°C

1.2 Static Characteristics (tested on wafer) at 25°C

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
$V_{(BR)DSS}$	Drain to Source Breakdown Voltage	650	-	-	V	V_{GS} = 0V, I_D = 1mA
$R_{DS(on)}$	Static Drain to Source On-Resistance	-	-	0.205	Ω	V_{GS} = 10V, I_D = 6.4A
$V_{GS(th)}$	Gate Threshold Voltage	3.6	-	4.4	V	V_{DS} = V_{GS}. I_D = 0.32mA
I_{DSS}	Drain to Source Leakage Current	-	-	1.0	µA	V_{DS} = 650V, V_{GS} = 0V
I_{GSS}	Gate to Source Leakage Current	-	-	1.0	µA	V_{GS} = 20V, V_{DS} = 0V
V_{SD}	Body Diode Forward Voltage	-	-	0.457	V	I_S = 0.64mA, V_{GS} = 0V

Preliminary

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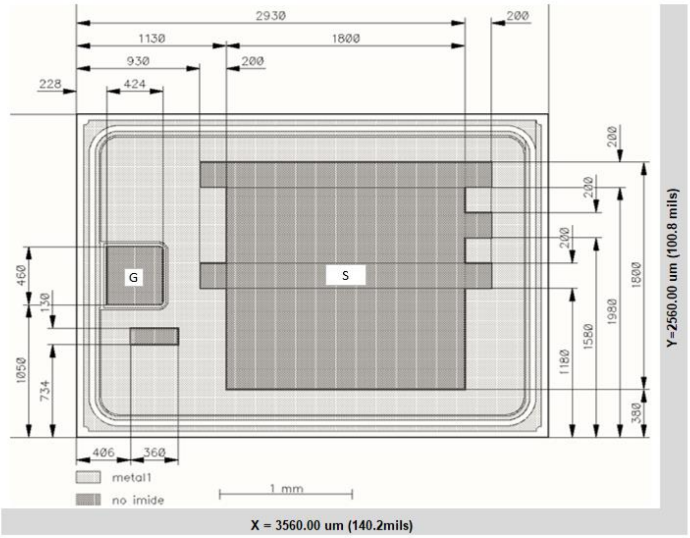
[1] IRXPBE65R190CFD7A characterization in PG-TO263-7-11

2 Mechanical Parameters

Die Dimension	3.56 x 2.56	mm^2
Total area	9.11	
Die thickness	220	µm
Wafer size	200	mm
Passivation front side	None	
Front metallization	AlCu	
Front metallization thickness	5.0	µm
Back metallization	Al/Ti/NiV/Ag	
Back metallization thickness	1.1	µm
Die Attach	Conductive Epoxy or Solder	
Wire bonding	Aluminum	

Preliminary

3 Die Drawing



Key	Pad	Micrometers	Micrometers	mils		TCL
		X	Y	X	Y	
G	**Gate**	424.00	460.00	16.69	18.11	+/- 5um
S	**Source**	1800.00	1800.00	70.87	70.87	+/- 5um

	X	Y	X	Y	TCL
Die Size	**3560.0**	**2560.0**	140.2	100.8	+/- 200um

Notes:

1 ALL DIMENSIONS ARE SHOW IN MICROMETERS & MILS
2 CONTROLLING DIMENSION: MICROMETER
3 DIE GENERATION: CoolMOS
4 FRONT METAL - ALCU / 5 µm
5 BACK METAL - [AL/TI/NIV/AG / 1.1 µm]
6 DIE THICKNESS: 220 um.
7 FOR SAWN DIE, OUTLINE DIMENSIONS (X & Y) WILL BE REDUCED BY 25um DUE TO SAW KERF

Preliminary

Revision history

Document version	Date of release	Description of changes
	03/17/2026	Die datasheet with RPD number (RPD-98037)

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