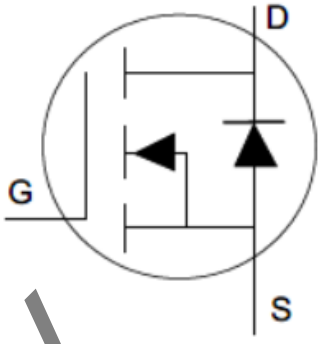
Technical documents

600V CoolMOS™ S7 Power Mosfet

RPD-98039

Features

- S7 technology enables low $R_{DS(ON)}$
- Optimized for low frequency switching applications
- High pulse current capability



Potential applications

- Solid state relay
- Electronic circuit breaker
- Power line rectification

Product validation

JESD-22

Description

600V CoolMOS™ S7 enables the best performance for low frequency switching applications. S7 technology features low $R_{DS(ON)}$ to reduce conduction losses which increases system efficiency. It is ideal for applications such as solid-state relays, electronic circuit breakers and line rectification in an SMPS or inverter applications.

Ordering Information

Table 1 Ordering Options

Part Number	Package	Screening Level	Operating Temperature [1]
IRFC60R022CDV	Die	Visual Inspection	-55°C to 150°C

Note (1): Characterized in a PG-HSOF-8 package

Table of contents

1 Electrical Characteristics

1.1 Absolute Maximum Ratings [1]

Symbol	Parameter	Max.	Units
$I_{D,pulse}$	T_C=25°C	375	A
I_D @ T_C=140°C	Continuous Drain Current, V_{GS} @ 10V	23	A
V_{GS}	Gate to Source Voltage	±20	V
T_J	Junction Temperature	-55 to +150	°C

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

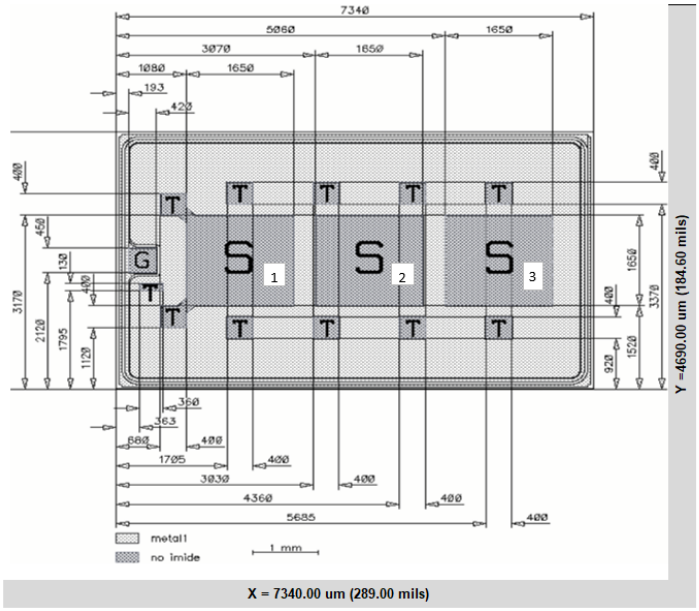
Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
$V_{(BR)DSS}$	Drain to Source Breakdown Voltage	600	-	-	V	V_{GS} = 0V, I_D = 1mA
$V_{GS(th)}$	Gate Threshold Voltage	3.6	-	4.4	V	V_{DS} = V_{GS}. I_D = 1.44mA
I_{DSS}	Drain to Source Leakage Current	-	-	1.0	µA	V_{DS} = 600V, V_{GS} = 0V
I_{GSS}	Gate to Source Leakage Current	-	-	1.0	µA	V_{GS} = 20V, V_{DS} = 0V
V_{SD}	Body Diode Forward Voltage	-	-	10	V	I_S = 5.6A, V_{GS} = 0V

[1] Characterized in a PG-HSOF-8 package.

2 Mechanical Parameters

Die Dimension	7.34 x 4.69	mm^2
Total area	34.42	
Die thickness	90	µm
Wafer size	200	mm
Passivation front side	None	
Front metallization	Ti/TiN/W/AlCu	
Front metallization thickness	5.0	µm
Back metallization	Al/Ti/NiV/AuSn	
Back metallization thickness	2.1	µm
Die Attach	Conductive Epoxy or Diffusion Soldering	
Wire bonding	Aluminum	

3 Die Drawing



Key	Pad	Micrometers		mils		TCL
		X	Y	X	Y	
G	**Gate**	420.00	450.00	**16.54**	**17.72**	+/- 5um
S1	**Source**	1650.00	1650.00	**64.96**	**64.96**	+/- 5um
S2	**Source**	1650.00	1650.00	**64.96**	**64.96**	+/- 5um
S3	**Source**	1650.00	1650.00	**64.96**	**64.96**	+/- 5um

	X	Y	X	Y	TCL
Die Size	**7340.0**	**4690.0**	289.0	184.6	+/- 200um

Notes:

1 ALL DIMENSIONS ARE SHOW IN MICROMETERS & MILS
2 CONTROLLING DIMENSION: MICROMETER
3 DIE GENERATION: CoolMOS S7
4 FRONT METAL - TI/TIN/W/ALCU / 5.0um
5 BACK METAL - AL/TI/NIV/AUSN / 2.1um
6 DIE THICKNESS: 90 um.
7 FOR SAWN DIE, OUTLINE DIMENSIONS (X & Y) WILL BE REDUCED BY 25um DUE TO SAW KERF

Revision history

Document version	Date of release	Description of changes
	03/24/2026	Die datasheet with RPD number (RPD-98039)

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