

# 30CLJQ100

PD-94085E

## Schottky Rectifier High Efficiency Series Surface Mount (SMD-0.5) 100V, 30A

### Features

- Hermetically sealed
- Center tap
- Low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- Surface mount
- Light weight
- ESD rating: Class 3B per MIL-STD-750, Method 1020

### Potential Applications

- DC-DC converter
- Protection circuits

### Product Validation

Fully qualified according to MIL-PRF-19500 for space applications

### Description

The 1N6843CCU3 center tap Schottky rectifier has been expressly designed to meet the rigorous requirements of high reliability environments. It is packaged in the hermetic surface mount SMD-0.5 ceramic package. The device's forward voltage drop and reverse leakage current are optimized for the lowest power loss and the highest circuit efficiency for typical high frequency switching power supplies and resonant power converters. Full MIL-PRF- 19500 quality conformance testing is available on source control drawings to TX, TXV and S quality levels.

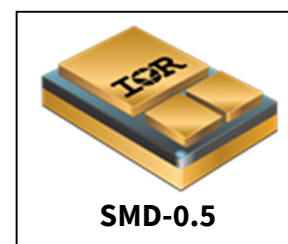
### Ordering Information

**Table 1** Ordering options

Part number	Package	Screening Level
30CLJQ100	SMD-0.5	COTS
30CLJQ100B	SMD-0.5 with lead attach and formed	COTS
30CLJQ100SCSA	SMD-0.5 with lead attach	S-level
JANTX1N6843CCU3	SMD-0.5	JANTX
JANTXV1N6843CCU3	SMD-0.5	JANTXV
JANS1N6843CCU3	SMD-0.5	JANS

### Product Summary

- **Part number:** 30CLJQ100
- **DLA part number:** JANS1N6843CCU3, JANTX1N6843CCU3, JANTXV1N6843CCU3  
REF: MIL-PRF-19500/681
- **$I_{F(AV)}$ :** 30A
- **$V_{RRM}$  (per leg):** 100V
- **$V_F$  @ 30A<sub>p</sub>,  $T_J = 125^\circ\text{C}$  (per leg) :** 0.95V
- **$I_{FSM}$  @  $t_p = 8.3\text{ms}$  half-sine (per leg) :** 100A



# 30CLJQ100

## Schottky Rectifier High Efficiency Series

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### Table of contents

### Table of contents

<b>Features .....</b>	<b>1</b>
<b>Potential Applications.....</b>	<b>1</b>
<b>Product Validation.....</b>	<b>1</b>
<b>Description .....</b>	<b>1</b>
<b>Ordering Information.....</b>	<b>1</b>
<b>Table of contents.....</b>	<b>2</b>
<b>1 Absolute Maximum Ratings .....</b>	<b>3</b>
<b>2 Device Characteristics .....</b>	<b>4</b>
2.1 Electrical Characteristics .....	4
2.2 Thermal-Mechanical Specifications .....	4
<b>3 Electrical Characteristics Curves.....</b>	<b>5</b>
<b>4 Package Outline.....</b>	<b>7</b>
<b>Revision history.....</b>	<b>8</b>

## Absolute Maximum Ratings

# 1 Absolute Maximum Ratings

Table 2 Absolute Maximum Ratings

Symbol	Parameter	Value	Unit
$V_R$	DC reverse voltage (per leg)	100	V
$V_{RWM}$	Working peak reverse voltage (per leg)	100	V
$I_{F(AV)}$	Max. average forward current (per package) <sup>1</sup> - Refer to Fig. 5	30	A
$I_{FSM}$	Max. peak one cycle non-repetitive surge current (per leg) <sup>2</sup>	100	A
$T_J$ $T_{STG}$	Operating Junction and Storage Temperature Range	-65 to 150	°C
	Weight	1.0 (Typical)	g

<sup>1</sup> 50% duty cycle @  $T_c = 83^\circ\text{C}$ , square waveform

<sup>2</sup>  $t_p = 8.3$  ms half-sine

## Device Characteristics

## 2 Device Characteristics

### 2.1 Electrical Characteristics

Table 3 Electrical Characteristics

Symbol	Parameter	Max.	Unit	Test Conditions	
V <sub>F</sub>	Forward Voltage Drop (Per Leg) See Fig. 1 <sup>1</sup>	0.95	V	@5.0A	T <sub>J</sub> = -55°C
		1.18	V	@15A	
		1.43	V	@30A	
		0.77	V	@5.0A	T <sub>J</sub> = 25°C
		1.03	V	@15A	
		1.27	V	@30A	
		0.65	V	@5.0A	T <sub>J</sub> = 125°C
		0.77	V	@15A	
		0.95	V	@30A	
I <sub>R</sub>	Reverse Leakage Current (Per Leg) See Fig. 2 <sup>1</sup>	0.01	mA	T <sub>J</sub> = 25°C	V <sub>R</sub> = rated V <sub>R</sub>
		1.19	mA	T <sub>J</sub> = 100°C	
		5.0	mA	T <sub>J</sub> = 125°C	
C <sub>J</sub>	Junction Capacitance (Per Leg)	275	pF	V <sub>R</sub> = 5V <sub>DC</sub> ( 1MHz, 25°C )	
L <sub>S</sub>	Series Inductance (Per Leg)	4.8(Typical)	nH	Measured from center of cathode pad to center of anode pad	

### 2.2 Thermal-Mechanical Specifications

Table 4 Thermal-Mechanical Specifications

Symbol	Parameter	Max.	Unit	Test Conditions
$R_{\theta JC}$	Thermal Resistance, Junction to Case (Per Leg)	3.5	$^{\circ}\text{C}/\text{W}$	DC operation See Fig. 4
$R_{\theta JC}$	Thermal Resistance, Junction to Case (Per Package)	1.75	$^{\circ}\text{C}/\text{W}$	DC operation
	Die Size (Typical)	84 x 84	mils	

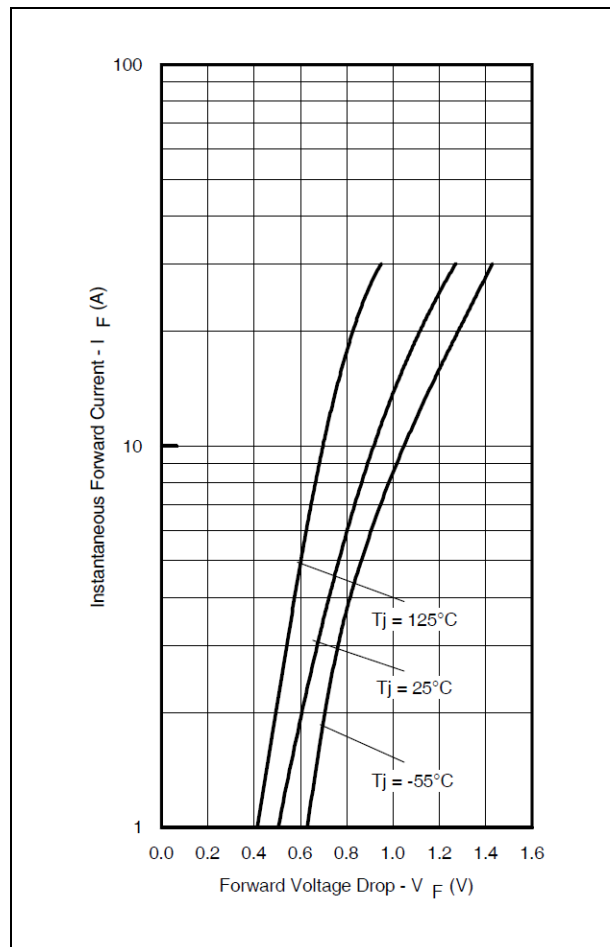
<sup>1</sup> Pulse Width < 300 $\mu\text{s}$ , Duty Cycle < 2%

# 30CLJQ100

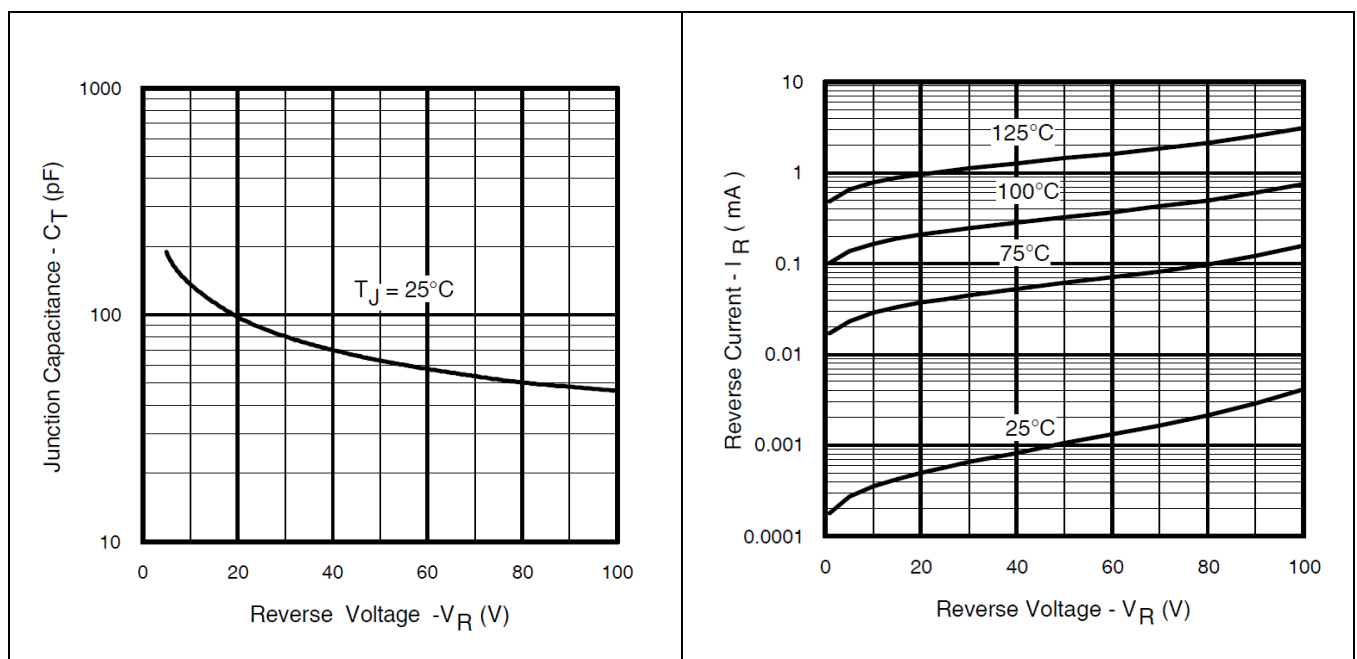
## Schottky Rectifier High Efficiency Series

### Electrical Characteristics Curves

## 3 Electrical Characteristics Curves



**Figure 1** Maximum Forward Voltage Drop Characteristics (Per Leg)



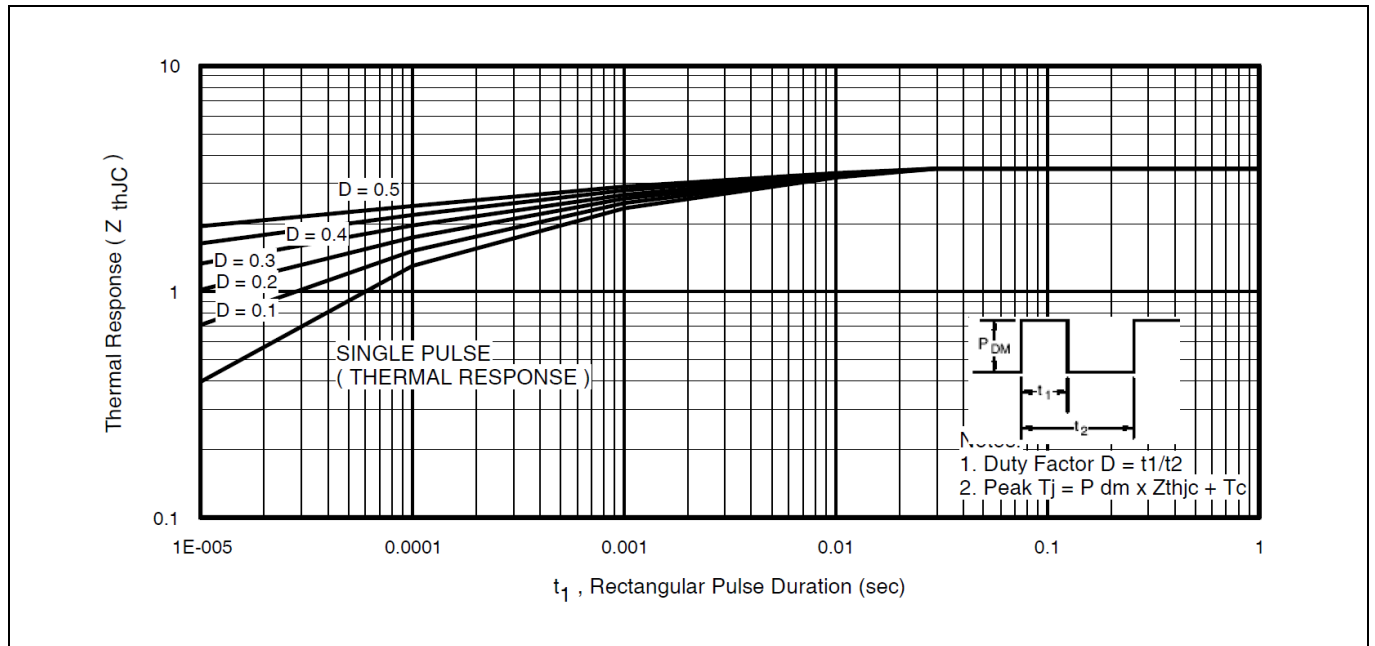
**Figure 2** Typical Values of Reverse Current Vs. Reverse Voltage (Per Leg)

**Figure 3** Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

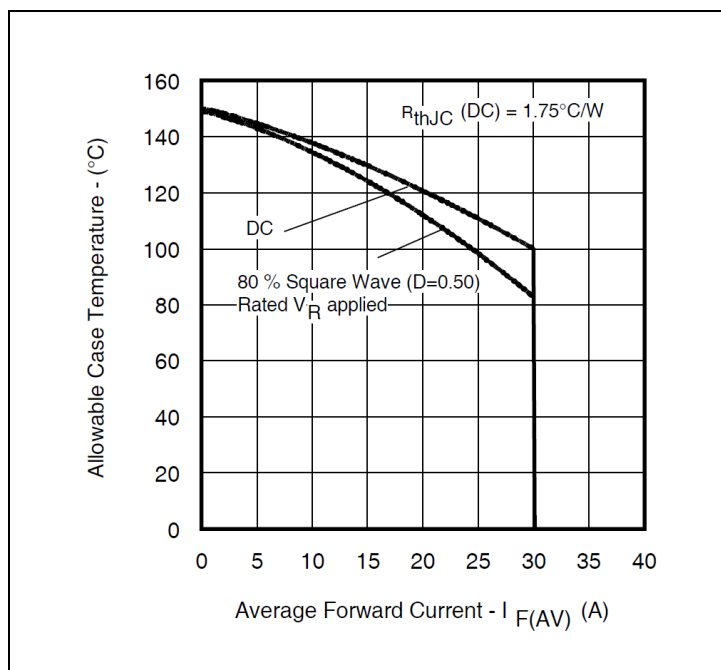
# 30CLJQ100

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### Electrical Characteristics Curves



**Figure 4** Maximum Thermal Impedance  $Z_{thJC}$  Characteristics (Per Leg)



**Figure 5** Maximum Allowable Case Temperature Vs. Average Forward Current (Per Package)

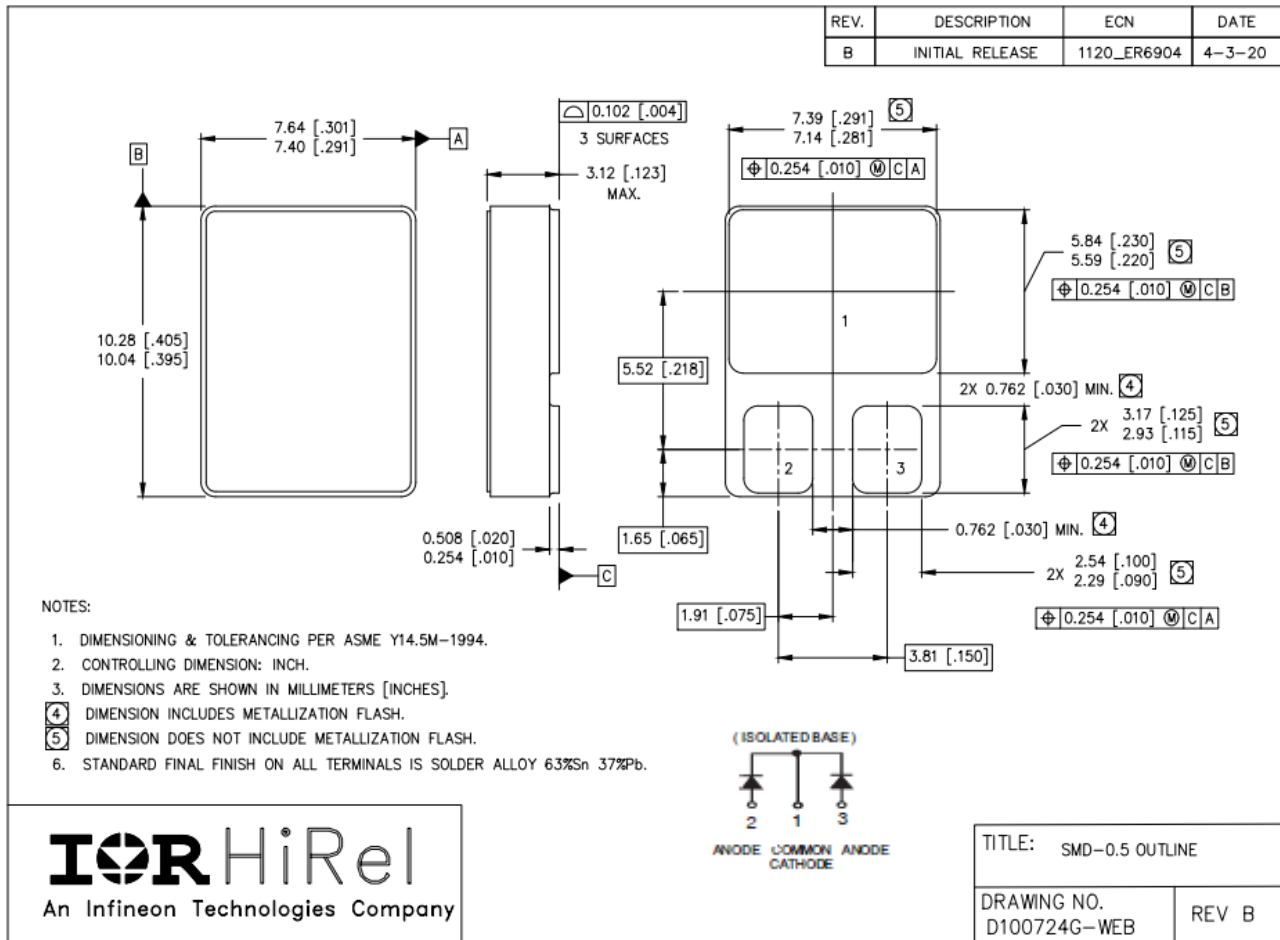
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## Schottky Rectifier High Efficiency Series

### Package Outline

## 4 Package Outline

**Note:** For the most updated package outline, please see the website: [SMD-0.5](#)



**Revision history**

Document version	Date of release	Description of changes
	01/23/2001	Final datasheet (PD-94085)
Rev A	08/10/2001	Updated Vf curve –page3
Rev B	11/29/2007	Updated fig 5 –page4
Rev C	05/13/2008	Updated per ECN-16060
Rev D	10/19/2012	Added ESD rating –page1
Rev E	06/15/2021	Updated per ECN-1120-08640



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