

RoHS Compliant Product  
A suffix of "-C" specifies halogen free

## DESCRIPTION

SSD30N03J uses advanced trench technology and design to provide excellent  $R_{DS(on)}$  with low gate charge. It can be used in a wide variety of applications.

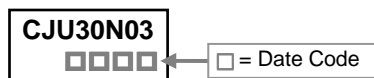
## FEATURES

- High density cell design for ultra low  $R_{DS(on)}$
- Fully characterized avalanche voltage and current
- Good stability and uniformity with high  $E_{AS}$
- Excellent package for good heat dissipation
- Special processing technology for high ESD capability

## APPLICATION

- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply

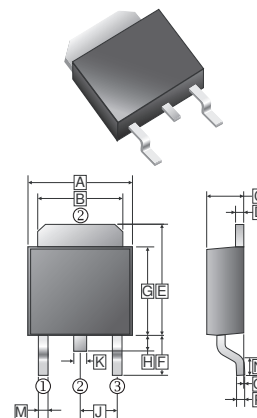
## MARKING



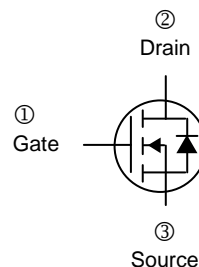
## PACKAGE INFORMATION

Package	MPQ	Leader Size
TO-252	2.5K	13 inch

## TO-252



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	6.35	6.90	J	2.186	2.386
B	4.95	5.50	K	0.64	1.14
C	2.10	2.50	M	0.50	1.14
D	0.43	0.9	N	1.3	1.8
E	6.0	7.5	O	0	0.13
F	2.90	REF.	P	0.58	REF.
G	5.40	6.40			
H	0.60	1.20			



## ABSOLUTE MAXIMUM RATINGS ( $T_A=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	30	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current	$I_D$	30	A
Pulsed Drain Current	$I_{DM}$	80	A
Single Pulsed Avalanche Energy <sup>1</sup>	$E_{AS}$	72	mJ
Power Dissipation	$P_D$	1.25	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	100	$^\circ\text{C/W}$
Junction and Storage Temperature Range	$T_J, T_{STG}$	150, -55~150	$^\circ\text{C}$

Notes:

1.  $E_{AS}$  condition:  $V_{DD}=20\text{V}$ ,  $L=0.5\text{mH}$ ,  $R_G=25\Omega$ , Starting  $T_J=25^\circ\text{C}$ .

**ELECTRICAL CHARACTERISTICS** ( $T_A=25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
<b>Off Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	30	-	-	V	$V_{GS}=0, I_D=250\mu\text{A}$
Zero Gate Voltage Drain Current	$I_{DSS}$	-	-	1	$\mu\text{A}$	$V_{DS}=30\text{V}, V_{GS}=0$
Gate-Body Leakage Current	$I_{GSS}$	-	-	$\pm 100$	nA	$V_{DS}=0\text{V}, V_{GS}=\pm 20\text{V}$
<b>On Characteristics</b> <sup>1</sup>						
Gate-Threshold Voltage	$V_{GS(th)}$	1	-	2.5	V	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$
Static Drain-Source On-Resistance	$R_{DS(ON)}$	-	-	22	m $\Omega$	$V_{GS}=10\text{V}, I_D=15\text{A}$
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{iss}$	-	938	-	pF	$V_{DS}=15\text{V}$ $V_{GS}=0\text{V}$ $f=1\text{MHz}$
Output Capacitance	$C_{oss}$	-	142	-		
Reverse Transfer Capacitance	$C_{rss}$	-	99	-		
<b>Switching Characteristics</b>						
Total Gate Charge	$Q_g$	-	17.5	-	nC	$V_{DS}=15\text{V}$ $V_{GS}=10\text{V}$ $I_D=20\text{A}$
Gate-Source Charge	$Q_{gs}$	-	3	-		
Gate-Drain Charge	$Q_{gd}$	-	4.1	-		
Turn-on Delay Time	$T_{d(on)}$	-	5	-	nS	$V_{DD}=15\text{V}$ $V_{GS}=10\text{V}$ $R_G=3\Omega$ $R_L=0.75\Omega$ $I_D=2\text{A}$
Rise Time	$T_r$	-	12	-		
Turn-off Delay Time	$T_{d(off)}$	-	19	-		
Fall Time	$T_f$	-	6	-		
<b>Drain-Source Diode Characteristics</b>						
Diode Forward Voltage <sup>1</sup>	$V_{SD}$	-	-	1.2	V	$V_{GS}=0, I_S=10\text{A}$
Continuous Drain-Source Diode Forward Current	$I_S$	-	-	30	A	
Pulsed Drain-Source Diode Forward Current	$I_{SM}$	-	-	80	A	

Notes:

1. Pulse test : Pulse width  $\leq 300\mu\text{s}$ , duty cycle  $\leq 2\%$ .

**RATINGS AND CHARACTERISTIC CURVES**

