

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.

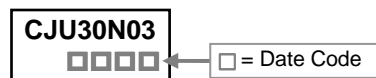
FEATURES

- 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

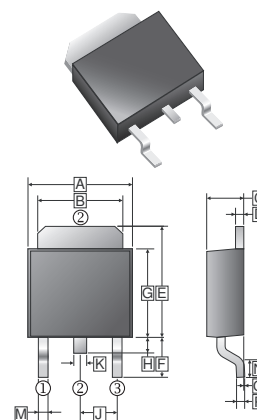
MARKING



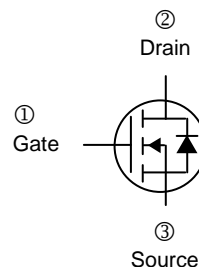
PACKAGE INFORMATION

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}	± 20	V
Continuous Drain Current	I_D	30	A
Pulsed Drain Current	I_{DM}	80	A
Single Pulsed Avalanche Energy ¹	E_{AS}	72	mJ
Power Dissipation	P_D	1.25	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	100	$^\circ\text{C}/\text{W}$
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)

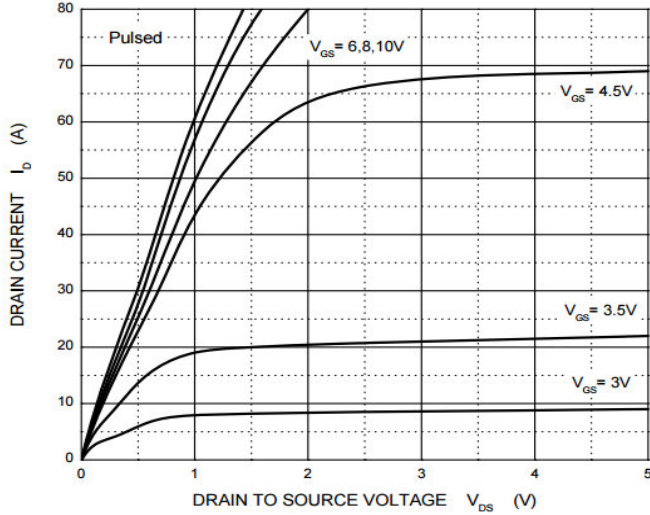
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Off Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	30	-	-	V	$V_{GS}=0, I_D=250\mu\text{A}$
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	$V_{DS}=30\text{V}, V_{GS}=0$
Gate-Body Leakage Current	I_{GSS}	-	-	± 100	nA	$V_{DS}=0\text{V}, V_{GS}=\pm 20\text{V}$
On Characteristics ¹						
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 Ω	$V_{GS}=10\text{V}, I_D=15\text{A}$
Dynamic Characteristics						
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	-		
Switching Characteristics						
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	-		
Drain-Source Diode Characteristics						
Diode Forward Voltage ¹	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:

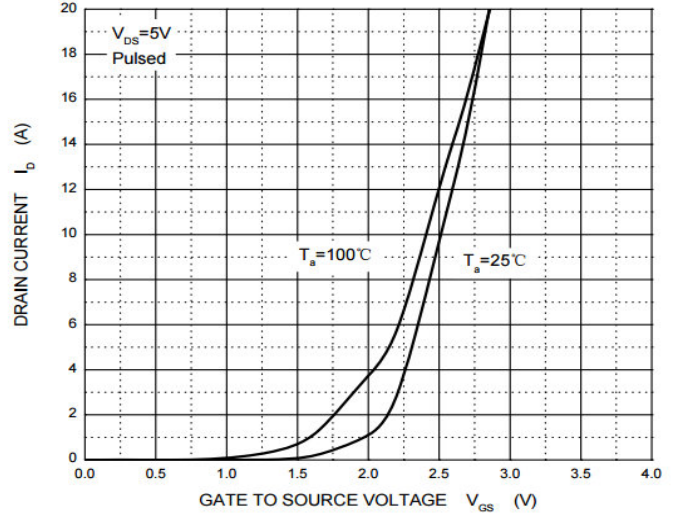
1. Pulse test : Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

RATINGS AND CHARACTERISTIC CURVES

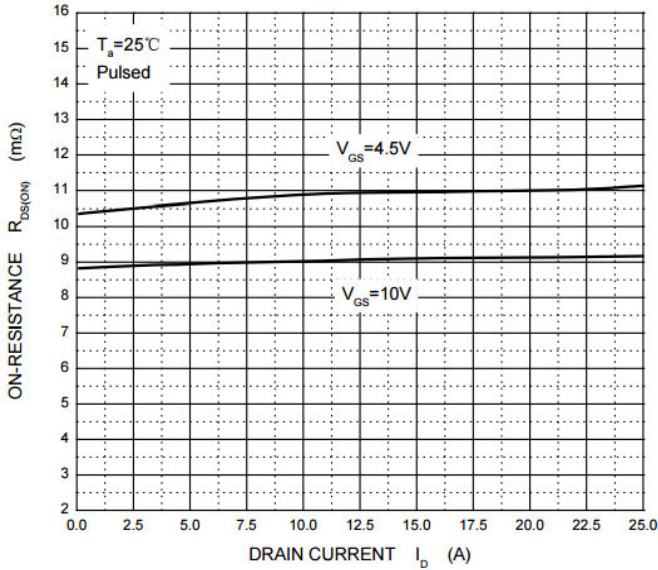
Output Characteristics



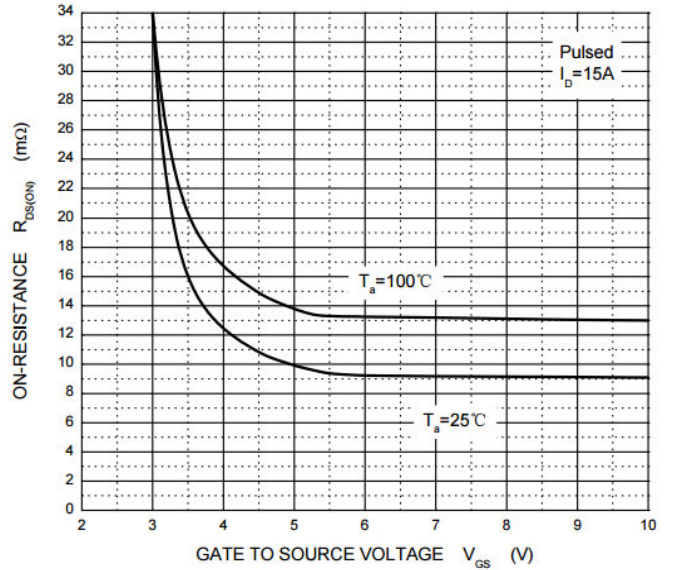
Transfer Characteristics



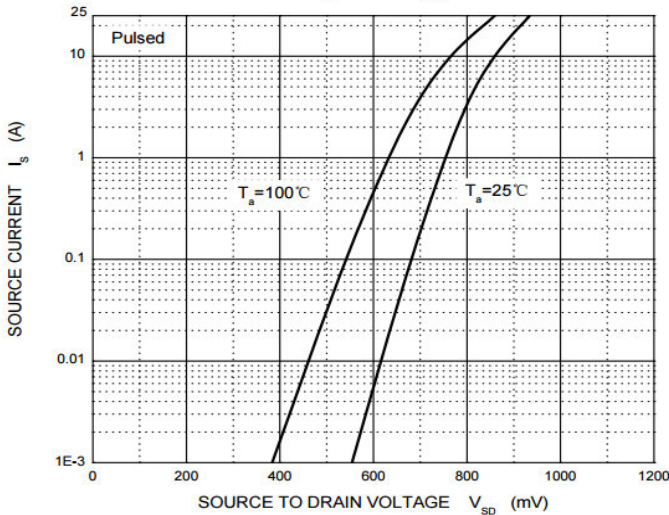
$R_{DS(ON)}$ — I_D



$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}



Threshold Voltage

