

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

## DESCRIPTION

SSD75N06J 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.

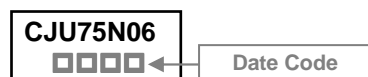
## FEATURES

- Good stability and uniformity with high EAS
- High-density cell design for ultra low  $R_{DS(ON)}$
- Special processing technology for high ESD capability
- Fully characterized avalanche voltage and current

## APPLICATION

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

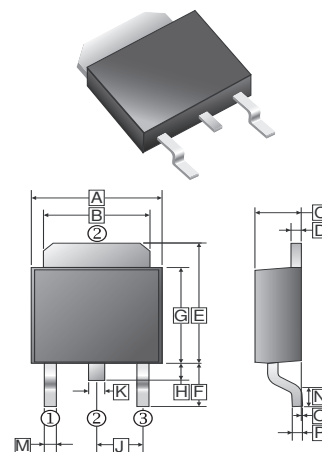
## MARKING



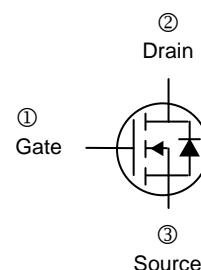
## PACKAGE INFORMATION

Package	MPQ	Leader Size
TO-252	2.5K	13 inch

## TO-252(D-Pack)



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	6.35	6.90	J	2.336	REF.
B	4.95	5.50	K	0.89	REF.
C	2.10	2.50	M	0.50	1.14
D	0.665 Typ.		N	1.55 Typ.	
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	$V_{DS}$	60	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current	$I_D$	75	A
Pulsed Drain Current	$I_{DM}$	300	A
Single Pulsed Avalanche Energy <sup>1</sup>	$E_{AS}$	300	mJ
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	100	$^{\circ}\text{C} / \text{W}$
Maximum Lead Temperature for Soldering Purposes @ 1/8" from case for 5 seconds	$T_L$	260	$^{\circ}\text{C}$
Junction and Storage Temperature Range	$T_J, T_{STG}$	150, -55~150	$^{\circ}\text{C}$

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

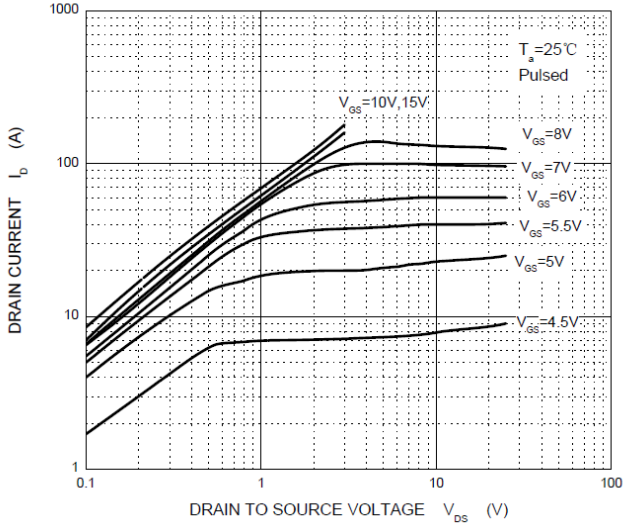
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
<b>Off Characteristics</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	60	68	-	V	$V_{GS}=0, I_D=250\mu\text{A}$
Drain-Source Leakage Current	$I_{DSS}$	-	-	1	$\mu\text{A}$	$V_{DS}=60\text{V}, V_{GS}=0$
Gate-Source Leakage Current	$I_{GSS}$	-	-	$\pm 100$	nA	$V_{DS}=0\text{V}, V_{GS}=\pm 20\text{V}$
<b>On Characteristics</b> <sup>2</sup>						
Gate-Threshold Voltage	$V_{GS(th)}$	2	2.7	4	V	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$
Static Drain-Source On-Resistance <sup>2</sup>	$R_{DS(ON)}$	-	9.1	11.5	m $\Omega$	$V_{GS}=10\text{V}, I_D=30\text{A}$
Forward Transconductance	$g_{fs}$	-	20	-	S	$V_{DS}=25\text{V}, I_D=30\text{A}$
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{iss}$	-	2350	-	pF	$V_{DS}=25\text{V}$ $V_{GS}=0$ $f=1\text{MHz}$
Output Capacitance	$C_{oss}$	-	237	-		
Reverse Transfer Capacitance	$C_{rss}$	-	205	-		
<b>Switching Characteristics</b>						
Total Gate Charge	$Q_g$	-	50	-	nC	$V_{DS}=30\text{V}$ $V_{GS}=10\text{V}$ $I_D=30\text{A}$
Gate-Source Charge	$Q_{gs}$	-	12	-		
Gate-Drain Charge	$Q_{gd}$	-	16	-		
Turn-on Delay Time	$T_{d(on)}$	-	16	-	nS	$V_{DD}=30\text{V}$ $V_{GS}=10\text{V}$ $R_G=2.5\Omega$ $R_L=15\Omega$ $I_D=2\text{A}$
Turn-on Rise Time	$T_r$	-	10	-		
Turn-off Delay Time	$T_{d(off)}$	-	45	-		
Turn-off Fall Time	$T_f$	-	12	-		
<b>Source-Drain Diode Characteristics</b>						
Diode Forward Voltage <sup>2</sup>	$V_{SD}$	-	-	1.2	V	$I_S=30\text{A}, V_{GS}=0$
Continuous Source Current	$I_S$	-	-	75	A	
Pulsed Source Current	$I_{SM}$	-	-	300	A	

Notes:

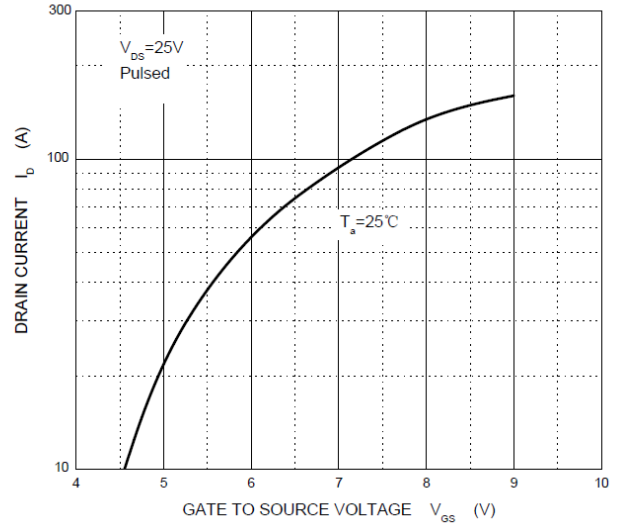
1.  $L=0.5\text{mH}, V_{DD}=30\text{V}, V_G=10\text{V}, R_G=25\Omega$ , Starting  $T_J=25^\circ\text{C}$ .
2. Pulse Test: Pulse width  $\leq 300\mu\text{s}$ , duty cycle  $\leq 2\%$ .

**CHARACTERISTIC CURVES**

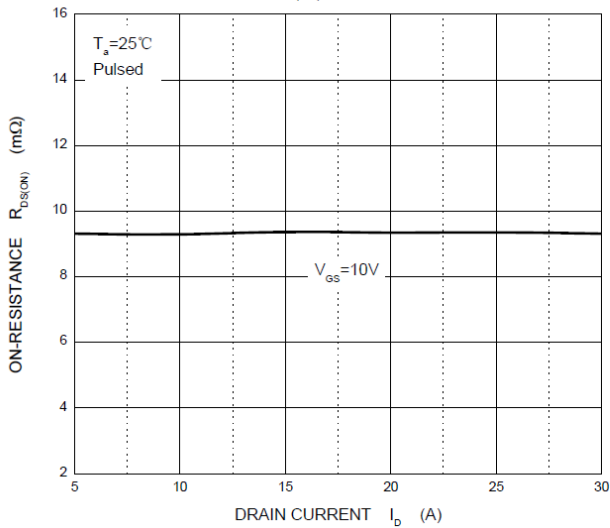
**Output Characteristics**



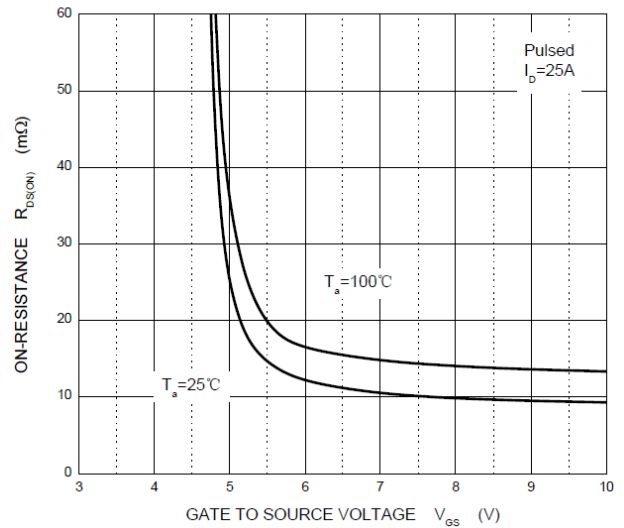
**Transfer Characteristics**



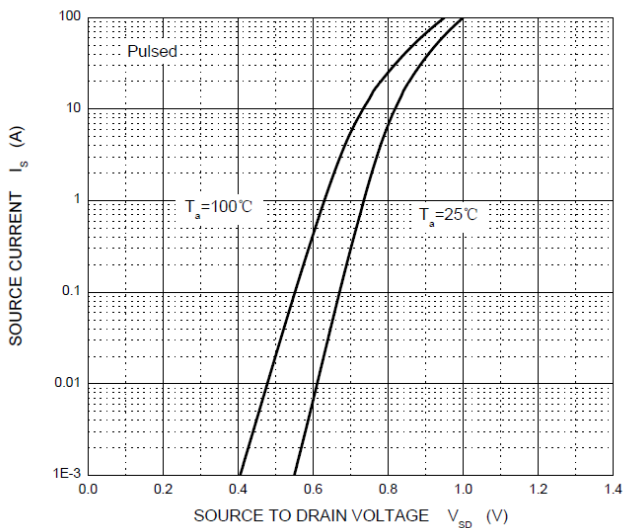
$R_{DS(ON)}$  —  $I_D$



$R_{DS(ON)}$  —  $V_{GS}$



$I_S$  —  $V_{SD}$



**Threshold Voltage**

