Elektronische Bauelemente

SSD30N10J

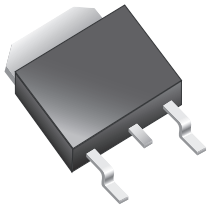
30A, 100V, $R_{DS(ON)}$ 31mΩ
N-Ch Enhancement Mode Power MOSFET

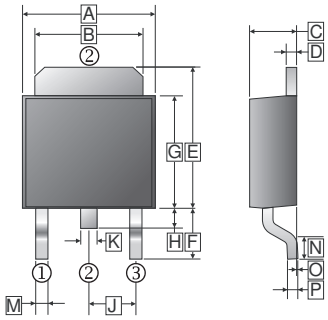
RoHS Compliant Product
A suffix of "-C" specifies halogen free

DESCRIPTION

SSD30N10J is designed to stand high energy in the avalanche mode and switch efficiently. It also offers a drain-to-source diode fast recovery time. It is designed for high voltage, high speed switching applications such as power supplies, converters, power motor controls and bridge circuits.

TO-252(D-Pack)



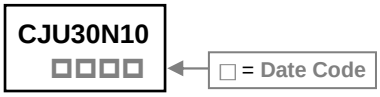


REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	6.30	6.90	J	2.30 REF.	
B	4.95	5.53	K	0.89 REF.	
C	2.10	2.50	M	0.45	1.14
D	0.40	0.90	N	1.55 TYP.	
E	6	7.70	O	0	0.15
F	2.90 REF		P	0.58 REF.	
G	5.40	6.40			
H	0.60	1.20			

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

MARKING

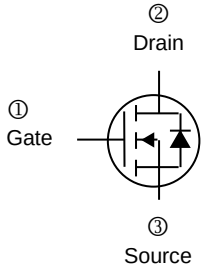


PACKAGE INFORMATION

Package	MPQ	Leader Size
TO-252	2.5K	13 inch

ORDER INFORMATION

Part Number	Type
SSD30N10J	Lead (Pb)-free
SSD30N10J-C	Lead (Pb)-free and Halogen-free



ABSOLUTE MAXIMUM RATINGS (T_A=25℃ unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	30	A
Pulsed Drain Current	I_{DM}	120	A
Single Pulse Avalanche Energy [1]	E_{AS}	156	mJ
Power Dissipation	P_D	1.25	W
Lead Temperature for Soldering Purposes @1/8'' from case for 10s	T_L	260	℃
Operating Junction & Storage Temperature Range	T_J, T_{STG}	150, -55~150	
Thermal Resistance Ratings			
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	100	℃/W

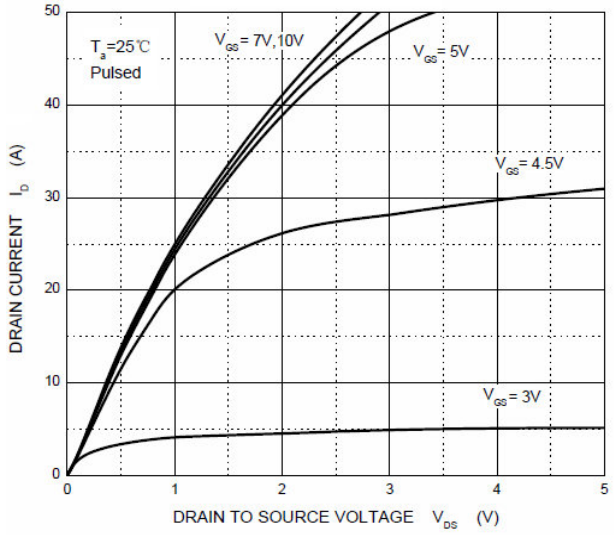
ELECTRICAL CHARACTERISTICS (T_A=25℃ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	100	-	-	V	V_{GS}=0V, I_D=250μA
Gate Threshold Voltage [2]	$V_{GS(th)}$	1.3	-	2.5	V	V_{DS}=V_{GS}, I_D=250μA
Forward Transconductance [2]	g_{fs}	-	15	-	S	V_{DS}=5V, I_D=10A
Gate-Source Leakage Current	I_{GSS}	-	-	±100	nA	V_{GS}= ±20V
Drain-Source Leakage Current	I_{DSS}	-	-	1	μA	V_{DS}=80V, V_{GS}=0V
Static Drain-Source On-Resistance [2]	$R_{DS(ON)}$	-	24	31	mΩ	V_{GS}=10V, I_D=15A
Total Gate Charge	Q_g	-	39	-	nC	I_D=10A V_{DS}=50V V_{GS}=10V
Gate-Source Charge	Q_{gs}	-	8	-		
Gate-Drain Change	Q_{gd}	-	12	-		
Turn-on Delay Time	$T_{d(on)}$	-	7	-	nS	V_{DD}=30V I_D=2A V_{GS}=10V R_G=3Ω R_L=5Ω
Rise Time	T_r	-	7	-		
Turn-off Delay Time	$T_{d(off)}$	-	29	-		
Fall Time	T_f	-	7	-		
Input Capacitance	C_{iss}	-	2000	-	pF	V_{GS}=0V V_{DS}=25V f=1MHz
Output Capacitance	C_{oss}	-	300	-		
Reverse Transfer Capacitance	C_{rss}	-	250	-		
Source-Drain Diode						
Diode Forward Voltage [2]	V_{SD}	-	-	1.2	V	I_S=15A, V_{GS}=0V
Continuous Source Current	I_S	-	-	30	A	
Pulsed Source Current	I_{SM}	-	-	120	A	

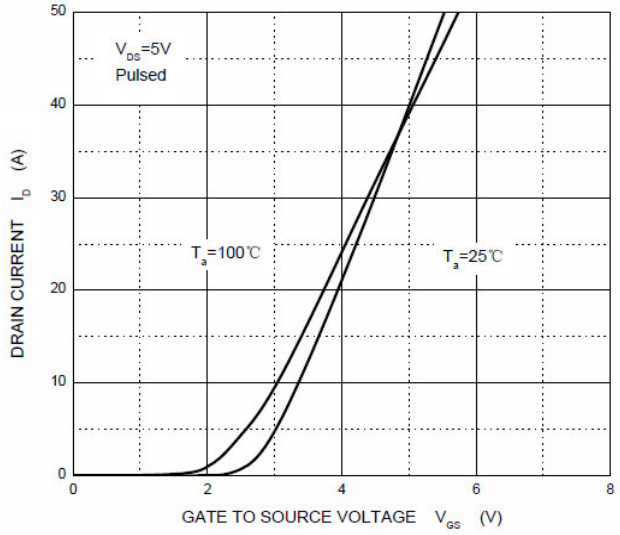
Notes:
1. E_{AS} condition: V_{DD}=50V, L=0.5mH, R_G=25Ω, Starting T_J=25℃.
2. Pulse Test: Pulse width≦300μs, duty cycle≦2%.

TYPICAL CHARACTERISTICS CURVE

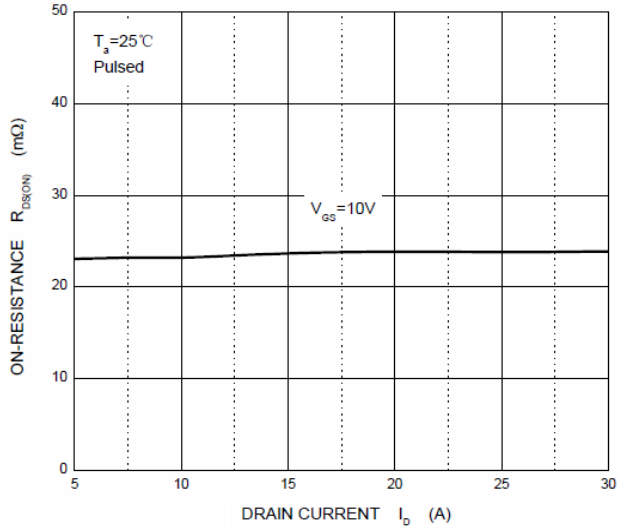
Output Characteristics



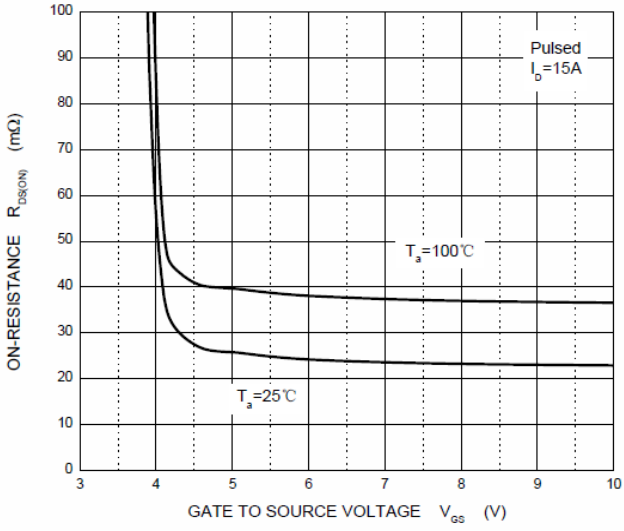
Transfer Characteristics



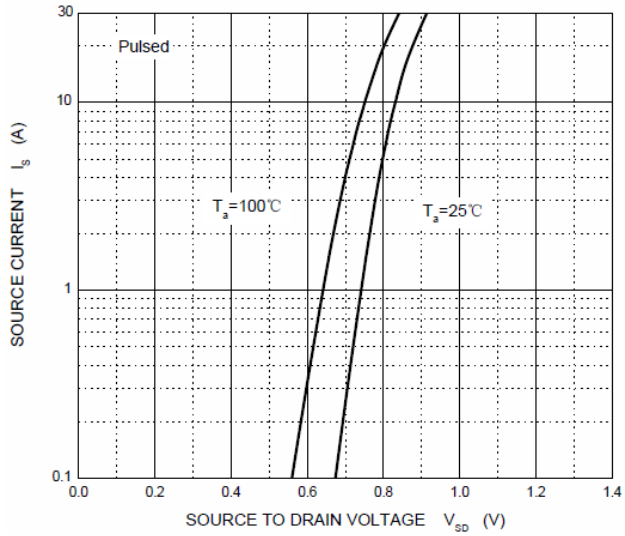
$R_{DS(ON)}$ — I_D



$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}



Threshold Voltage