

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

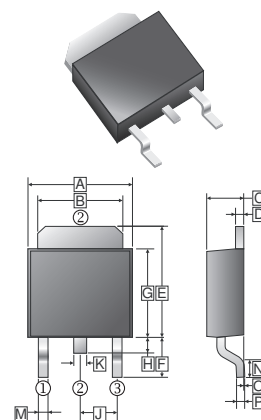
MARKING



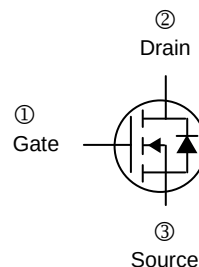
PACKAGE INFORMATION

Package	MPQ	Leader Size
TO-252	2.5K	13 inch

TO-252



REF.	Min.	Max.	REF.	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	$^{\circ}\text{C/W}$
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)

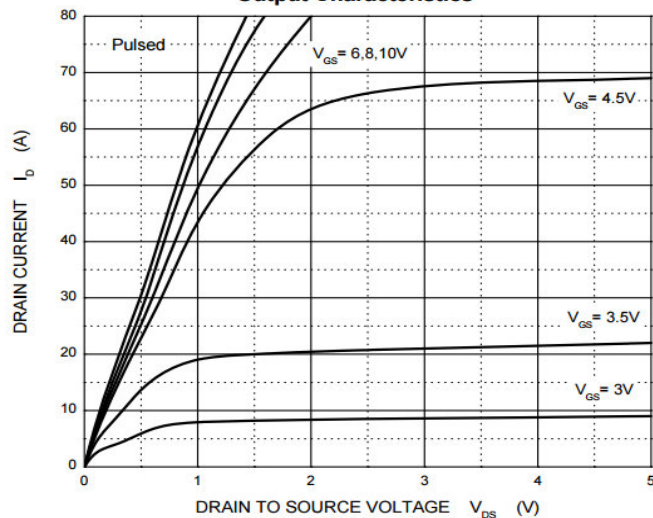
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Off Characteristics						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	30	-	-	V	V _{GS} =0, I _D =250μA
Zero Gate Voltage Drain Current	I _{DSS}	-	-	1	μA	V _{DS} =30V, V _{GS} =0
Gate-Body Leakage Current	I _{GSS}	-	-	±100	nA	V _{DS} =0V, V _{GS} = ±20V
On Characteristics ¹						
Gate-Threshold Voltage	V _{GS(th)}	1	-	2.5	V	V _{DS} =V _{GS} , I _D =250μA
Static Drain-Source On-Resistance	R _{DS(ON)}	-	-	22	mΩ	V _{GS} =10V, I _D =15A
Dynamic Characteristics						
Input Capacitance	C _{iss}	-	938	-	pF	V _{DS} =15V V _{GS} =0V f=1MHz
Output Capacitance	C _{oss}	-	142	-		
Reverse Transfer Capacitance	C _{rss}	-	99	-		
Switching Characteristics						
Total Gate Charge	Q _g	-	17.5	-	nC	V _{DS} =15V V _{GS} =10V I _D =20A
Gate-Source Charge	Q _{gs}	-	3	-		
Gate-Drain Charge	Q _{gd}	-	4.1	-		
Turn-on Delay Time	T _{d(on)}	-	5	-	nS	V _{DD} =15V V _{GS} =10V R _G =3Ω R _L =0.75Ω I _D =2A
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 =10A
Continuous Drain-Source Diode Forward Current	I _S	-	-	30	A	
Pulsed Drain-Source Diode Forward Current	I _{SM}	-	-	80	A	

Notes:

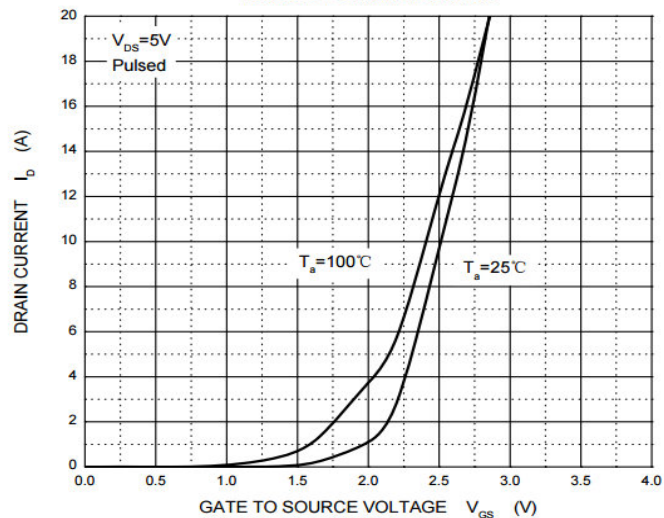
1. Pulse test : Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

RATINGS AND CHARACTERISTIC CURVES

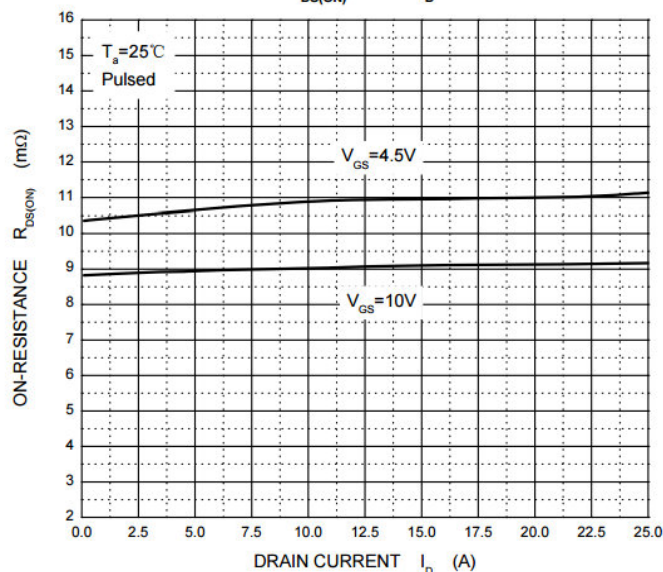
Output Characteristics



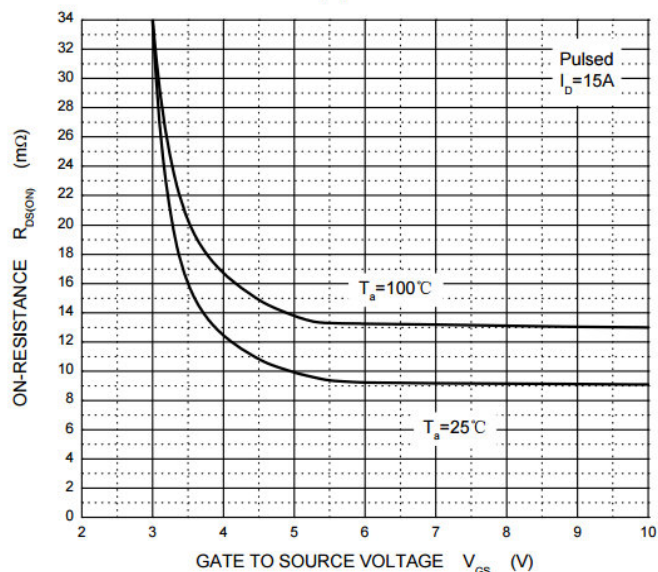
Transfer Characteristics



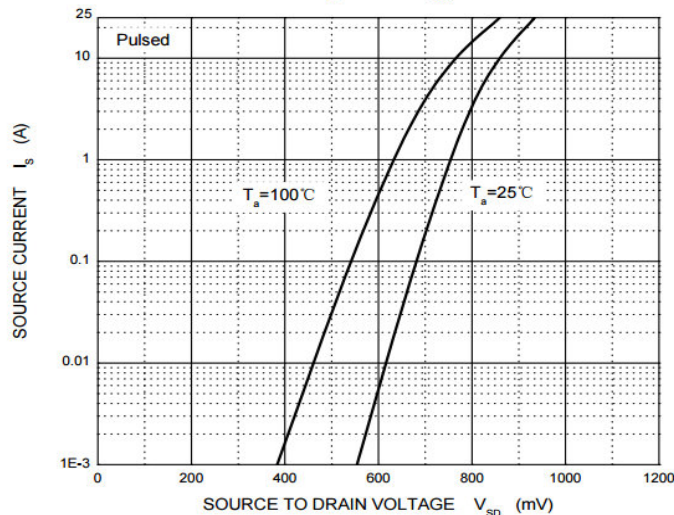
$R_{DS(ON)}$ — I_D



$R_{DS(ON)}$ — V_{GS}



I_S — V_{SD}



Threshold Voltage

