Elektronische Bauelemente

SSD50N06J

50A, 60V, $R_{DS(ON)}$ 20mΩ

N-Ch Enhancement Mode Power MOSFET

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

DESCRIPTION

SSD50N06J 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}

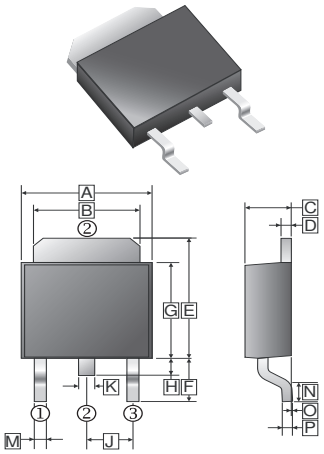
APPLICATIONS

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

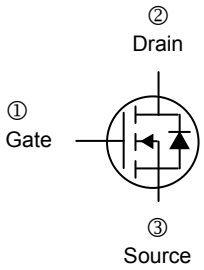
PACKAGE INFORMATION

Package	MPQ	Leader Size
TO-252	2.5K	13 inch

TO-252(D-Pack)



REF.	Millimeter Min.	Millimeter Max.	REF.	Millimeter Min.	Millimeter Max.
A	6.35	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	0.41	0.61	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°C unless otherwise specified)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	50	A
Pulsed Drain Current	I_{DM}	220	A
Single Pulsed Avalanche Energy [1]	E_{AS}	115	mJ
Power Dissipation	P_D	1.25	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	100	°C / W
Junction and Storage Temperature Range	T_J, T_{STG}	150, -50~150	°C

Notes:

1. E_{AS} condition: V_{DD}=50V, L=0.5mH, R_G=25Ω, T_J=25°C

ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	60	-	-	V	V_{GS}=0, I_D=250μA
Drain-Source Leakage Current	I_{DSS}	-	-	1	μA	V_{DS}=60V, V_{GS}=0
Gate-Source Leakage Current	I_{GSS}	-	-	±100	nA	V_{DS}=0V, V_{GS}= ±20V
On Characteristics [1]						
Gate-Threshold Voltage	$V_{GS(th)}$	1.5	-	2.5	V	V_{DS}=V_{GS}, I_D=250μA
Static Drain-Source On-Resistance[1]	$R_{DS(ON)}$	-	17	20	mΩ	V_{GS}=10V, I_D=20A
Forward Transconductance	g_{fs}	24	-	-	S	V_{DS}=25V, I_D=20A
Dynamic Characteristics						
Input Capacitance	C_{iss}	-	900	-	pF	V_{DS}=25V V_{GS}=0 f=1MHz
Output Capacitance	C_{oss}	-	104	-		
Reverse Transfer Capacitance	C_{rss}	-	33	-		
Switching Characteristics						
Total Gate Charge	Q_g	-	30	-	nC	V_{DS}=30V V_{GS}=10V I_D=50A
Gate-Source Charge	Q_{gs}	-	10	-		
Gate-Drain (“Miller”) Charge	Q_{gd}	-	5	-		
Turn-on Delay Time	$T_{d(on)}$	-	25	-	nS	V_{DD}=30V V_{GS}=10V R_G=2.5Ω R_L=15Ω I_D=2A
Rise Time	T_r	-	5	-		
Turn-off Delay Time	$T_{d(off)}$	-	50	-		
Fall Time	T_f	-	6	-		
Source-Drain Diode Characteristics						
Diode Forward Voltage [1]	V_{SD}	-	-	1.2	V	I_S=40A, V_{GS}=0
Continuous Source Current	I_S	-	-	50	A	
Pulsed Source Current	I_{SM}	-	-	220	A	

Notes:
1. Pulse Test: Pulse width≤300μs, duty cycle ≤2%.

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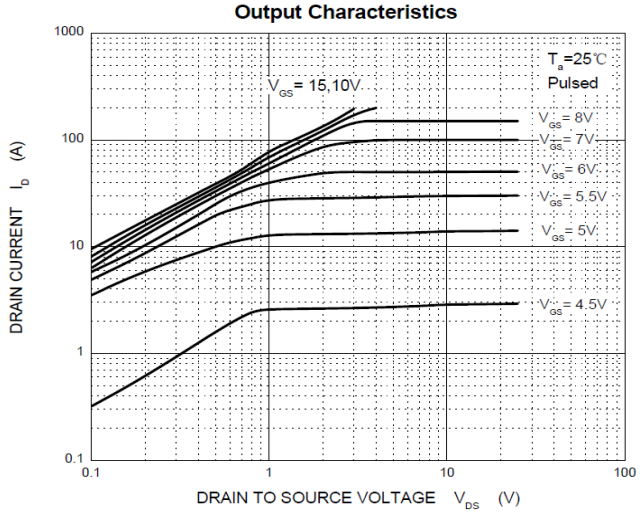
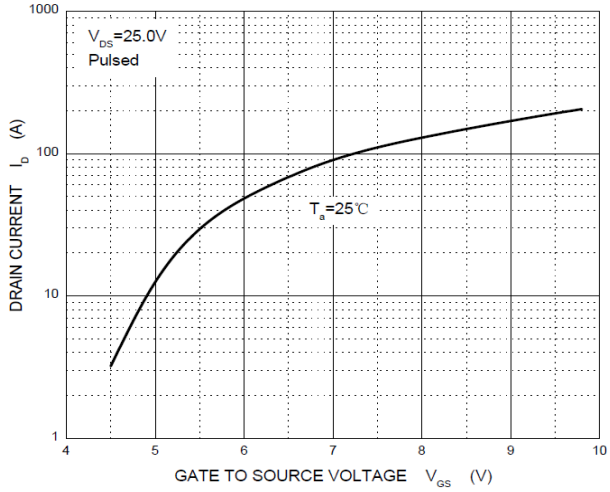
CHARACTERISTIC CURVE

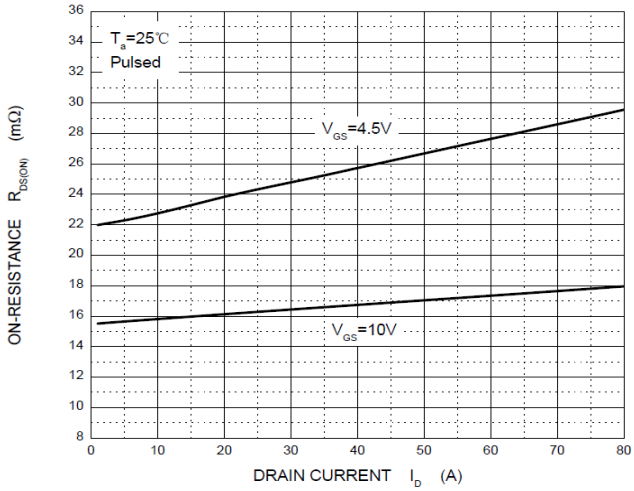
Output Characteristics



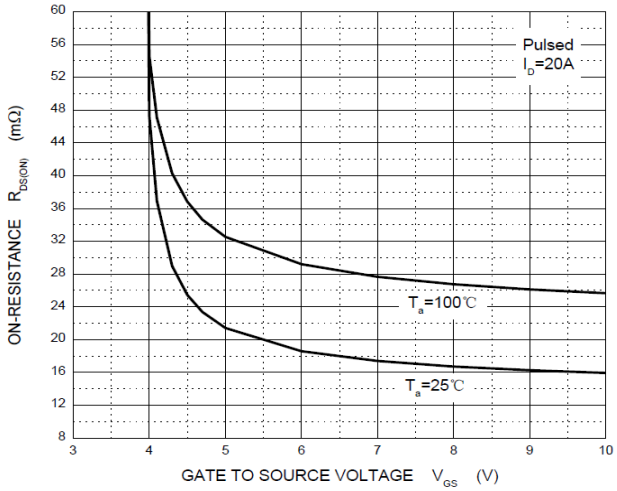
Transfer Characteristics



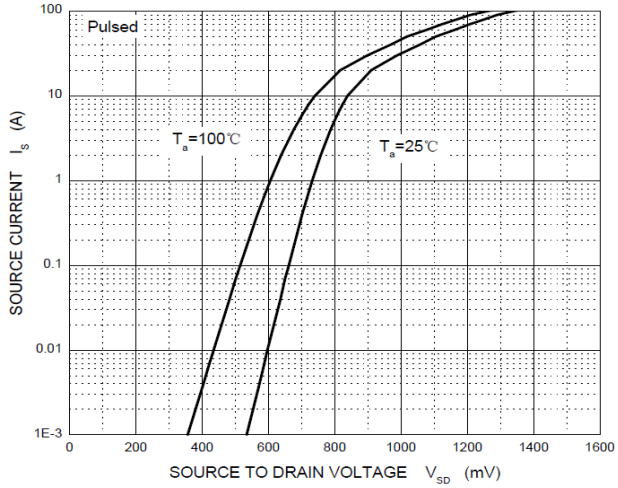
$R_{DS(ON)}$ —— I_D



$R_{DS(ON)}$—— V_{GS}



I_s —— V_{SD}



Threshold Voltage