Elektronische Bauelemente

SSA55H12J

120A, 55V, $R_{DS(ON)}$ 5.5 mΩ

N-Ch Enhancement Mode Power MOSFET

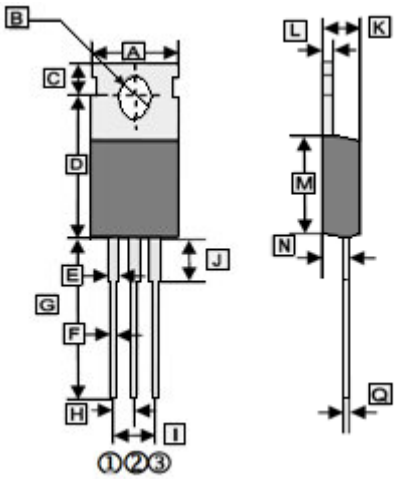
RoHS Compliant Product

A suffix of "-C" specifies halogen free

DESCRIPTION

SSA55H12J uses advanced trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge. This device is suitable for the use in a wide variety of applications.

TO-220J-A



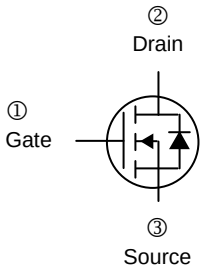
REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	9.91	10.25	I	4.98	5.18
B	3.4	3.8	J	2.85	3.25
C	2.65	2.95	K	4.4	4.6
D	12.65	12.95	L	1.2	1.4
E	1.17	1.37	M	8.95	9.75
F	0.71	0.91	N	2.25	2.55
G	12.9	13.4	Q	0.33	0.65
H	2.540 TYP.				

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



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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	55	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	120	A
Pulsed Drain Current	I_{DM}	420	A
Single Pulsed Avalanche Energy [1]	E_{AS}	1100	mJ
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	62.5	℃/ W
Maximum Lead Temperature for Soldering Purposes@ 1/8'' from Case for 5 seconds	T_L	260	℃
Junction and Storage Temperature Range	T_J, T_{STG}	150, -55~150	℃

ELECTRICAL CHARACTERISTICS (T_A=25℃ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Off Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	55	65	-	V	V_{GS}=0, I_D=250μA
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	μA	V_{DS}=55V, V_{GS}=0
		-	-	100		V_{DS}=0.8 × Rated $V_{(BR)DSS}$, V_{GS}=0, T_J=125℃
Gate-Body Leakage Current	I_{GSS}	-	-	±100	nA	V_{DS}=0V, V_{GS}= ±20V
On Characteristics [2]						
Gate-Threshold Voltage	$V_{GS(th)}$	2	-	4	V	V_{DS}=V_{GS}, I_D=250μA
Static Drain-Source On-Resistance	$R_{DS(ON)}$	-	4.1	5.5	mΩ	V_{GS}=10V, I_D=40A
Forward Transconductance	g_{FS}	-	50	-	S	V_{DS}=25V, I_D=40A
Dynamic Characteristics						
Input Capacitance	C_{iss}	-	4900	-	pF	V_{DS}=25V V_{GS}=0 f=1MHz
Output Capacitance	C_{oss}	-	470	-		
Reverse Transfer Capacitance	C_{rss}	-	460	-		
Switching Characteristics [2]						
Total Gate Charge	Q_g	-	125	-	nC	V_{DS}=30V V_{GS}=10V I_D=30A
Gate-Source Charge	Q_{gs}	-	24	-		
Gate-Drain Charge	Q_{gd}	-	49	-		
Turn-on Delay Time	$T_{d(on)}$	-	20	-	nS	V_{DS}=30V V_{GS}=10V R_{GEN}=2.5Ω I_D=2A
Rise Time	T_r	-	19	-		
Turn-off Delay Time	$T_{d(off)}$	-	70	-		
Fall Time	T_f	-	30	-		
Source-Drain Diode Characteristics						
Diode Forward Voltage [2]	V_{SD}	-	-	1.2	V	V_{GS}=0, I_S=40A
Continuous Drain-Source Diode Forward Current [3]	I_S	-	-	120	A	
Pulsed Drain-Source Diode Forward Current	I_{SM}	-	-	420	A	

Notes:
1. E_{AS} condition: V_{DD}=30V, L=0.5mH, R_G=25Ω, starting T_J=25℃.
2. Pulse test：Pulse width≦300μs, duty cycle≦2%.
3. The surface of the device is mounted on a FR4 board, t≦10s.

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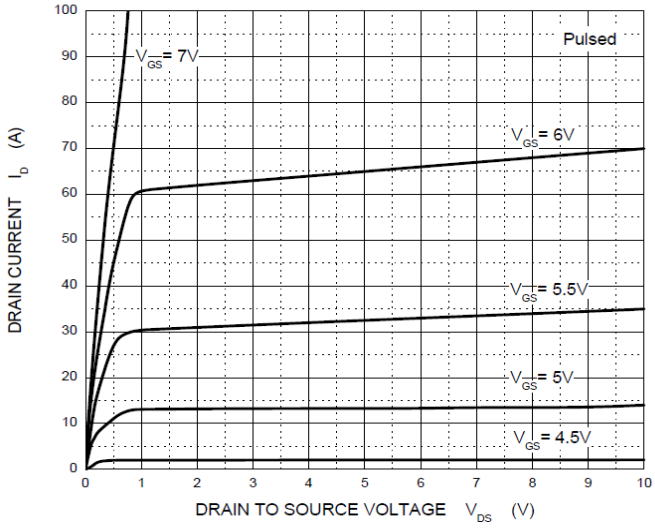
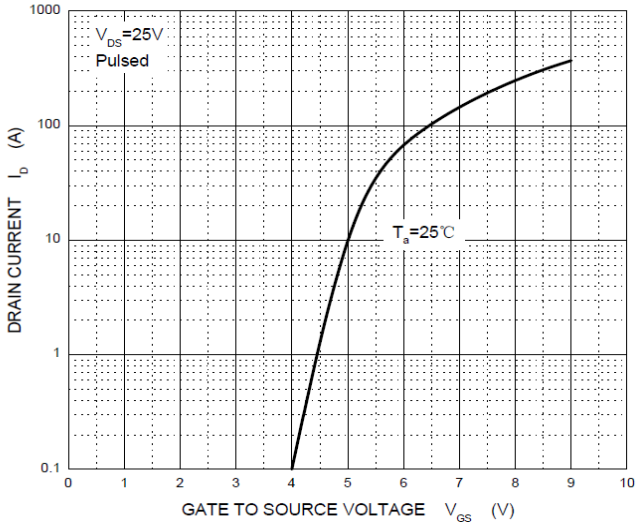
CHARACTERISTIC CURVES

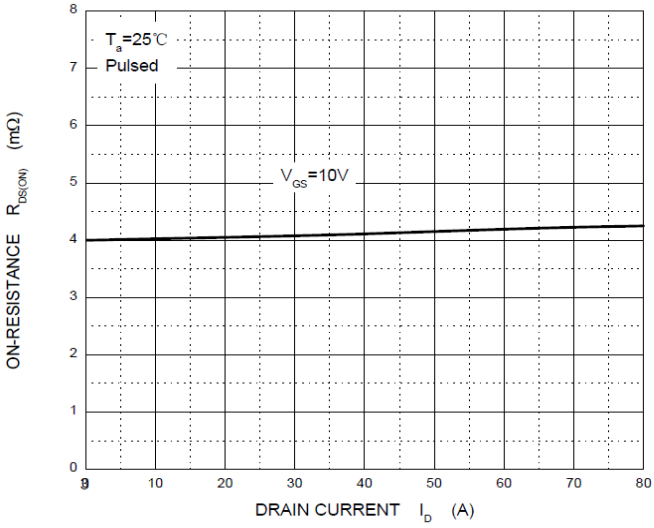
Output Characteristics



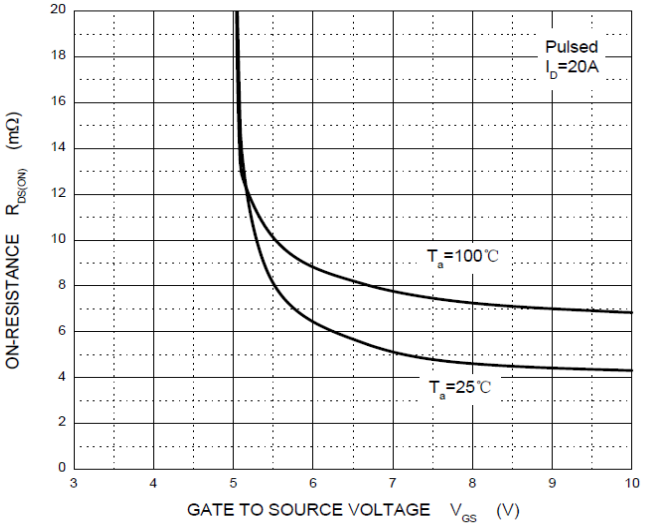
Transfer Characteristics



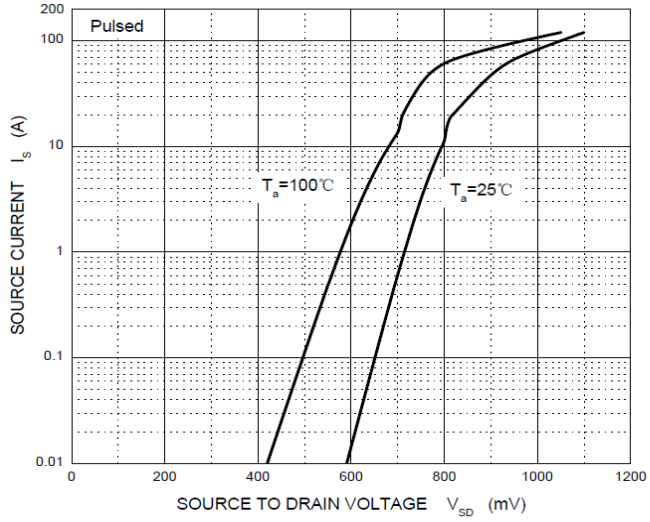
$R_{DS(ON)}$ —— I_D



$R_{DS(ON)}$ —— V_{GS}



I_S —— V_{SD}



Threshold Voltage