WILLAS

RoHS COMPLIANT

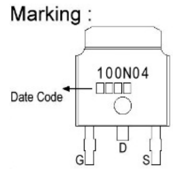
SJA100N0n

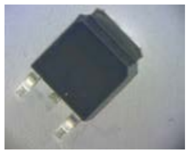
N-CHANNEL ENHANCEMENT MODE POWER MOSFET

PRIMARY CHARACTERISTICS	
BV_{DSS}	100V
$R_{DS(ON)}$	13mΩ
I_D	68A

TO-252AA PACKAGE

Marking :





Date Code

[illegible] 4=2014, 5=2015

The second code : Month=A,B,C,D............

A	B	C	D	E		F	G	H		I	J	K	L	M
1	2	3	4	5	6	7	8	X		9	10	1	1	12

The third code : Production Type No. 01-99

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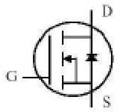
Ex : 4A01= 2014101 Produce



FEATURES

- Low On-Resistance
- Low Input Capacitance
- Green Device Available
- Low Miller Charge
- 100% EAS Guaranteed

MECHANICAL DATA

- Case：Molded plastic,TO-252AA
- Polarity：Shown above
- Terminals :Plated terminals, solderable per MIL-STD-750,Method 2026
- Epoxy : UL94-V0 rated flame retardant

DESCRIPTION

- The SJA100N04 uses advanced Trench technology and designs to provide excellent RDS(ON) with low gate charge. This device is suitable for use in PWM, load switching and general purpose applications.
- The SJA100N04 meet the RoHS and Green Product requirement, 100% EAS guaranteed with full function reliability approved.

Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D @T_C=25℃	68	A
	I_D @T_C=70℃	59	A
Pulsed Drain Current[1]	I_{DM}	200	A
Continuous Drain Current	I_D @T_A=25℃	12	A
	I_D @T_A=70℃	9	A
Total Power Dissipation	P_D @T_C=25℃	83	W
	P_D @T_A=25℃	2	W
Single Pulse Avalanche Energy, L=0.5mH	E_{AS}	156	mJ
Single Pulse Avalanche Current, L=0.5mH	I_{AS}	25	A
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 ~ +150	℃

Thermal Data

Parameter	Symbol	Conditions	Max. Value	Unit
Thermal Resistance Junction-ambient[2]	$R_{\theta JA}$	Steady State	62	℃/W
Thermal Resistance Junction-case[2]	$R_{\theta JC}$	Steady State	1.5	℃/W

Electrical Characteristics (T_J = 25℃ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	100	-	-	V	V_{GS}=0, I_D=250uA
Gate Threshold Voltage	$V_{GS(th)}$	2	3	4	V	V_{DS}=V_{GS}, I_D=250uA
Gate-Source Leakage Current	I_{GSS}	-	-	±100	nA	V_{GS}= ±20V
Drain-Source Leakage Current	I_{DSS}	-	-	1	uA	V_{DS}=80V, V_{GS}=0
Static Drain-Source On-Resistance[1]	$R_{DS(ON)}$	-	10	13	mΩ	V_{GS}=10V, I_D=30A
Total Gate Charge[1]	Q_g	-	145	-	nC	I_D=30A V_{DS}=50V V_{GS}=10V
Gate-Source Charge	Q_{gs}	-	25	-		
Gate-Drain (“Miller”) Change	Q_{gd}	-	43	-		
Turn-on Delay Time[1]	$T_{d(on)}$	-	27	-	ns	V_{DS}=50V V_{GS}=10V R_G=3Ω
Rise Time	T_r	-	13	-		
Turn-off Delay Time	$T_{d(off)}$	-	15	-		
Fall Time	T_f	-	42	-		
Input Capacitance	C_{iss}	-	3902	-	pF	V_{GS}=0V V_{DS}=30V f=1.0MHz
Output Capacitance	C_{oss}	-	251	-		
Reverse Transfer Capacitance	C_{rss}	-	93	-		
Gate Resistance	R_g	-	2.0	-	Ω	f=1.0MHz

Guaranteed Avalanche Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Single Pulse Avalanche Energy[3]	EAS	60	-	-	mJ	V_{DD}=50V, L=0.3mH, I_{AS}=20A

Source-Drain Diode

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Diode Forward Voltage[1]	V_{SD}	-	0.8	1.3	V	I_S=30A, V_{GS}=0V
Reverse Recovery Time	t_{rr}	-	65	-	ns	I_F=30A, dI/dt=100A/μs, T_J=25℃
Reverse Recovery Charge	Q_{rr}	-	175	-	nC	

Notes: **1. The data tested by pulsed, pulse width ≦ 300us, duty cycle ≦ 2%.**

2. $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins. $R_{\theta JC}$ is guaranteed by design while $R_{\theta CA}$ is determined by the user's board design. $R_{\theta JA}$ shown below for single device operation on FR-4 in still air.

3. The Min. value is 100% EAS tested guarantee.

Typical Characteristics

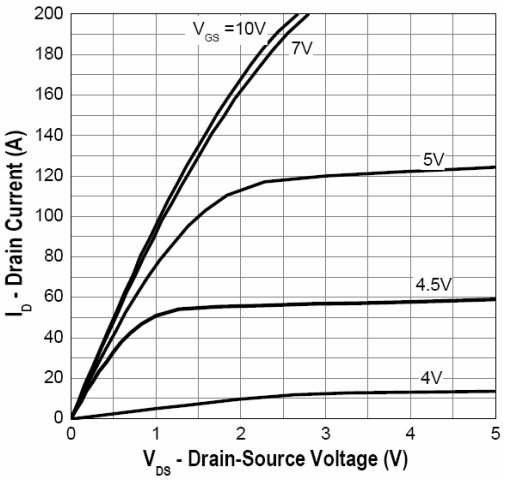


Fig.1 Typical Output Characteristics

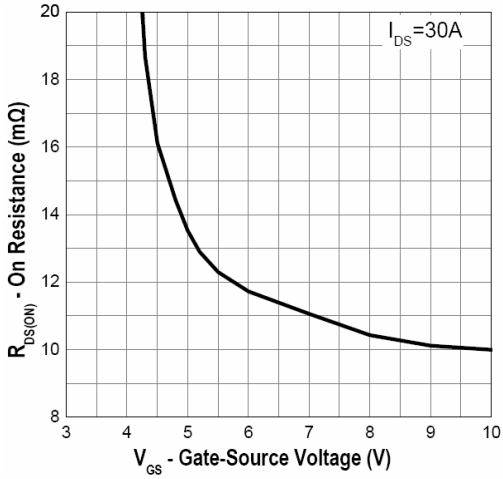


Fig.2 On-Resistance vs. G-S Voltage

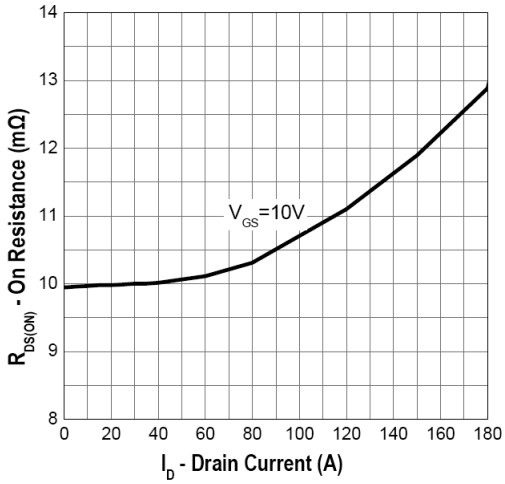


Fig.3 On-Resistance vs. Drain Current

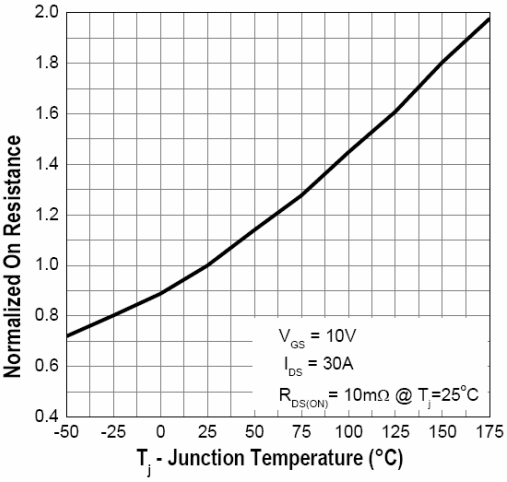


Fig.4 Normalized R_{DSON} vs. T_J

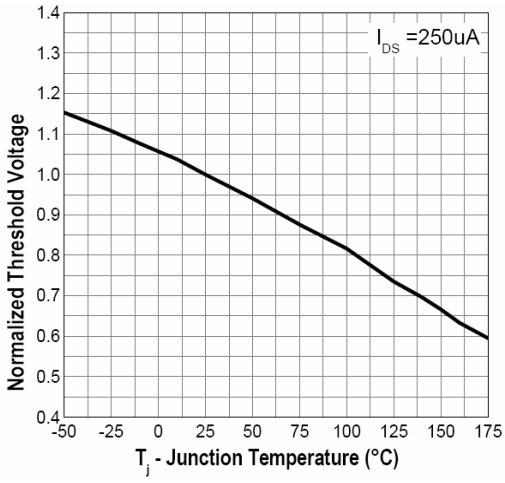


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

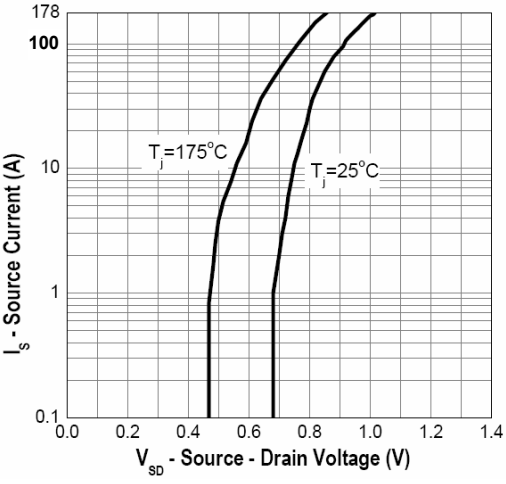


Fig.6 Forward Characteristics of Reverse

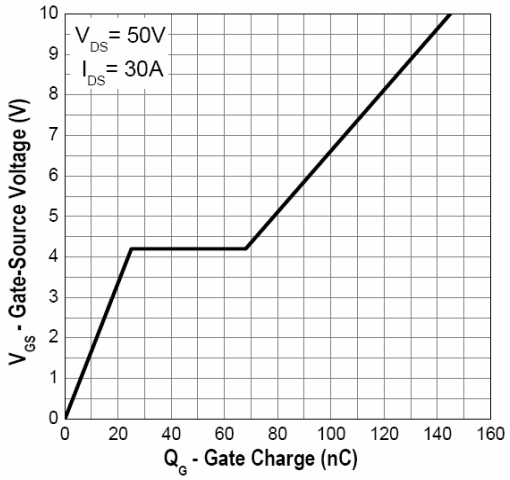


Fig.7 Gate Charge Characteristics

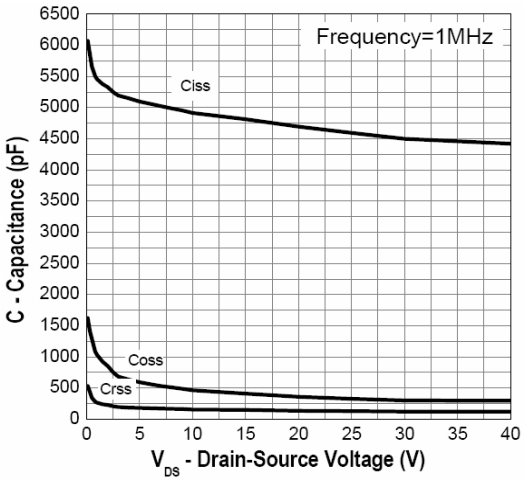


Fig.8 Capacitance Characteristics

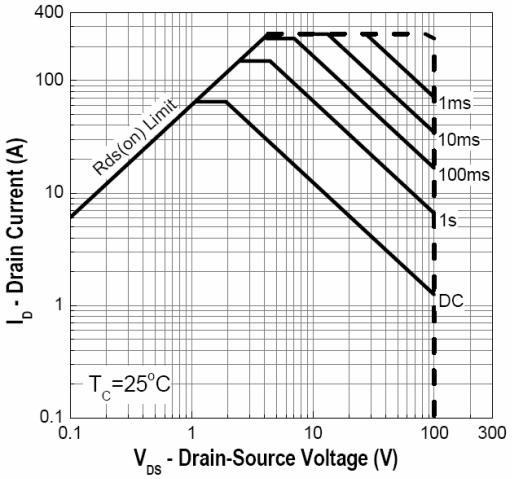


Fig.9 Safe Operating Area

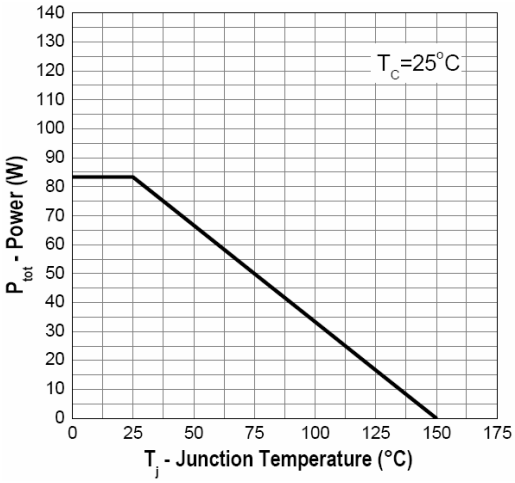


Fig.10 Power Dissipation

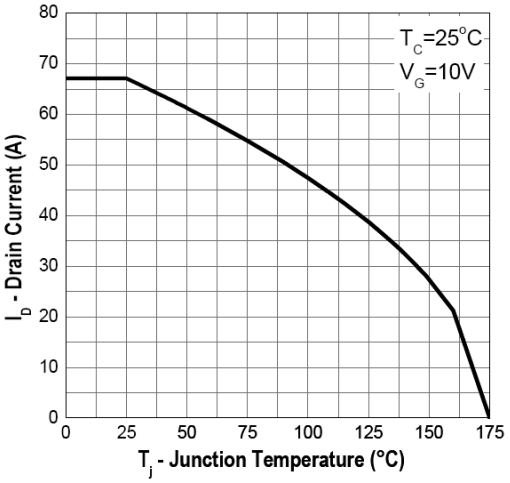


Fig.11 Drain Current vs. T_J

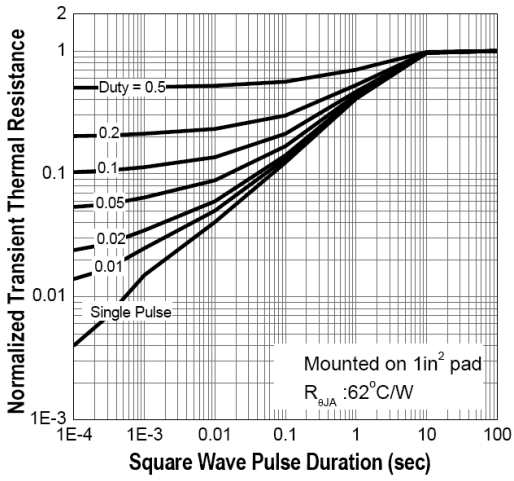
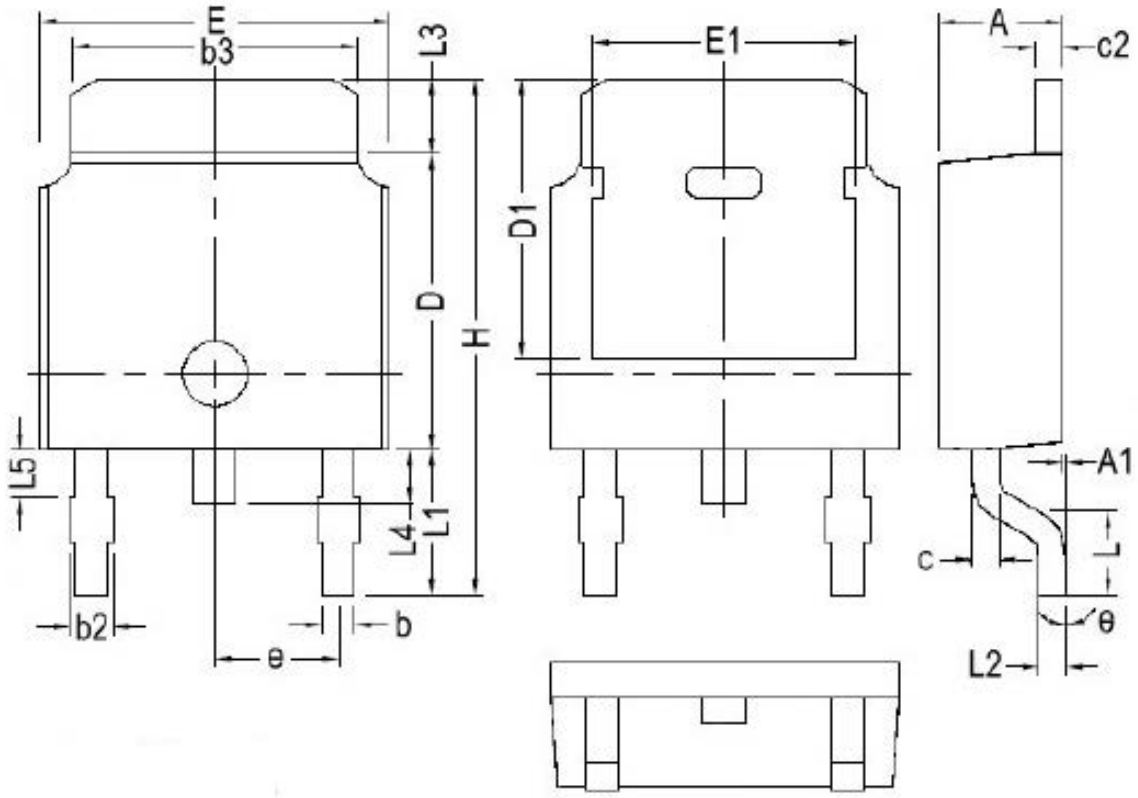


Fig.12 Transient Thermal Impedance

Outline Drawing

TO-252AA



REF.	Millimeter			REF.	Millimeter		
	Min.	Nom.	Max.		Min.	Nom.	Max.
A	2.20	2.30	2.38	E1	4.40	-	-
A1	0	-	0.127	e	2.286 BSC		
b	0.64	0.76	0.88	H	9.40	10.00	10.40
b2	0.77	0.84	1.14	L	1.40	1.52	1.77
b3	5.21	5.34	5.46	L1	2.743 REF.		
c	0.45	0.50	0.60	L2	0.508 BSC		
c2	0.45	0.50	0.58	L3	0.89	-	1.27
D	6.00	6.10	6.223	L4	0.64	-	1.01
D1	5.21	-	-	L5	-	-	-
E	6.40	6.60	6.731	θ	0°	-	10°

Rev.A

Ordering Information:

Device PN	Packing
SJA100N04 -T(1) H(2)-WS	Tape&Reel: 3 Kpcs/Reel

Note: (1) Packing code, Tape & Reel Packing

(2) Halogen free product for packing code suffix "H"