

N channel 30V MOSFET

1. Description

The HS20N03DA is the N-Channel logic enhancement mode power field effect transistors are produced using high cell density, DMOS trench technology. This high density process is especially tailored to minimize on-state resistance. These devices are particularly suited for low voltage application such as cellular phone, notebook computer power management and other battery powered circuits, and low in-line power loss that are needed in a very small outline surface mount package.

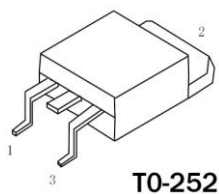
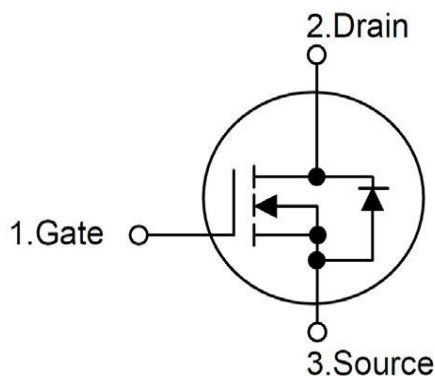
2. Feature

- $R_{DS(on)} \leq 19m\Omega @ V_{GS}=10V$
- Low dense cell design
- Exceptional on-resistance and maximum DC current

V _{DS}	30	V
R _{DS(on)}	19	mΩ
I _D	20	A

3. Pin configuration

Order Number	Package
HS20N03DA	T0-252



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4. Absolute maximum ratings (Tc=25°C Unless Otherwise Noted)

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V _{DSS}	30	V
Gate-Source Voltage		V _{GSS}	±20	V
Continuous Drain Current	T _c =25°C	I _D	20	A
	T _c =70°C		16	A
Pulsed Drain Currenta		I _{DM}	50	A
Power Dissipation	T _c =25°C	PD	25	W
	T _c =70°C		10	
Operating Junction and Storage Temperature Range		T _J , T _{stg}	-55~+150	°C

5. Thermal characteristics

Parameter	Symbol	Ratings	Units
Thermal resistance, case to sink typ.	R _{thCS}	0.5	°C/W
Thermal resistance junction to case.	R _{thJC}	3.3	°C/W
Thermal resistance junction to ambient.	R _{thJA}	110	°C/W

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6. Electrical characteristics (TA =25°C Unless Otherwise Specified)

Symbol	Parameter	Limit	Min	Typ	Max	Unit
STATIC						
BVDSS	Drain-Source Breakdown Voltage	VGS=0V, ID=250μA	30	-	-	V
VGS(th)	Gate Threshold Voltage	VDS=VGS, ID=250μA	1	1.5	3	V
IGSS	Gate-Body Leakage	VDS=0V, VGS=±20V	-	-	±100	μA
IDSS	Zero Gate Voltage Drain Current	VDS=24V, VGS=0V	-	-	1	μA
RDS(ON)	Drain-Source On-Resistance	VGS=10V, ID=8A	-	16	19	mΩ
		VGS=5V, ID=7A	-	20	25	mΩ
VSD	Diode Forward Voltage	IS=20A, VGS=0V	-	0.9	1.3	V
DYNAMIC						
Qg	Total Gate Charge	VDS=15V, VGS=10V, ID=10A	-	12	-	nC
Qgs	Gate-Source Charge		-	5.5	-	
Qgd	Gate-Drain Charge		-	2.2	-	
Ciss	Input Capacitance	VDS=15V, VGS=0V, f=1MHz	-	660	-	pF
Coss	Output Capacitance		-	143	-	
Crss	Reverse Transfer Capacitance		-	77	-	
td(on)	Turn-On Delay Time	VDS=15V, RG=3Ω, RL=2Ω, VGEN=5V	-	5	-	ns
tr	Turn-On Rise Time		-	3.2	-	
td(off)	Turn-Off Delay Time		-	24	-	
tf	Turn-Off Fall Time		-	6	-	
ISD	Continuous drain-source current		-	-	20	A
ISM	Pulsed drain-source current		-	-	50	A

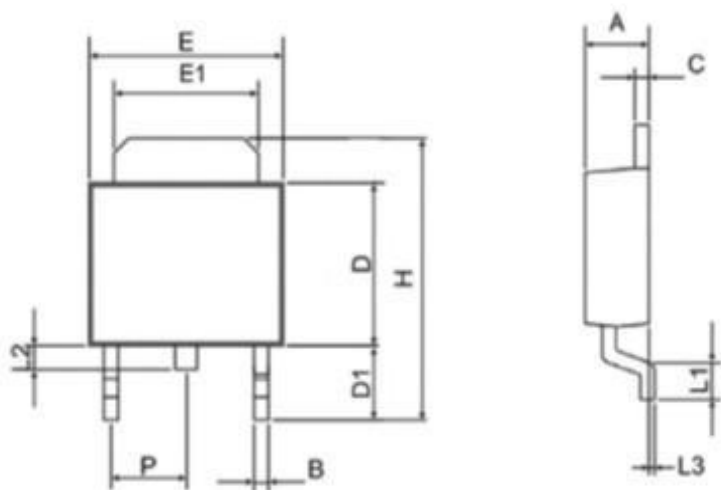
Notes :a. pulse test:pulse width 300 us,duty cycle 2% ,Guaranteed by design,not subject to production testing.

b. HOMSEMI reserves the right to improve product design,functions and reliability without notice.

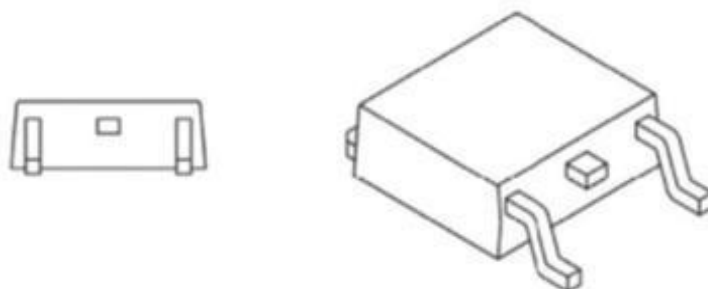
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8.Package Information:

Unit: mm



SYMBOL	MIN	MAX
A	2.1	2.5
B	0.4	0.9
C	0.4	0.9
D	5.3	6.3
D1	2.2	2.9
E	6.3	6.75
E1	4.8	5.5
L1	0.9	1.8
L2	0.5	1.1
L3	0	0.2
H	8.9	10.4
P	2.30 BSC	



TO-252