MSB55N03N3

30V N-Channel Logic Level Enhancement Mode MOSFET

Features

- VDS=30V

RDS(ON)=55mΩ@VGS=10V, ID=3.5A

RDS(ON)=85mΩ@VGS=4.5V, ID=2A

- Lower gate charge
- RoHS compliant package

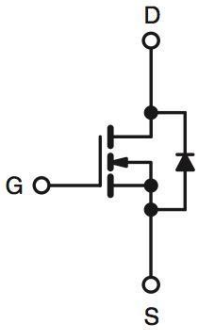
Package type：SOT-23

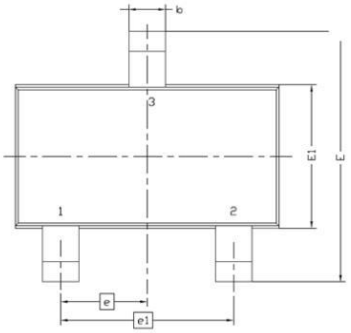
Packing & Order Information

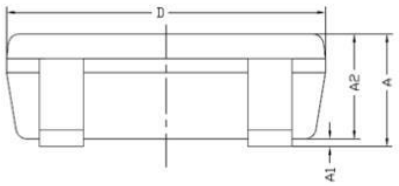
3,000/Reel

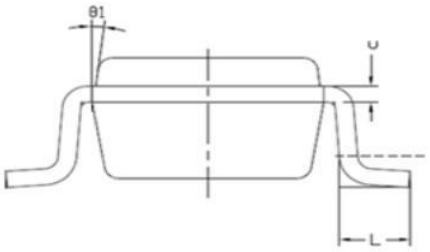
RoHS
COMPLIANT

Graphic symbol









Symbol	MILLIMETERS	
	MIN	MAX
A	0.8	1.2
A1	0	0.1
A2	0.7	1.1
b	0.3	0.5
c	0.1	0.2
D	2.7	3.1
E	2.6	3
E1	1.4	1.8
e	0.95 BSC	
e1	1.9 BSC	
L	0.3	0.6
θ1	7° NOM	

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MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings (Ta=25˚C)

Symbol	Parameter	Value	Unit
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Drain Current -Continuous (T_A =25°C)	3.5	A
	Drain Current -Continuous (T_A =70°C)	2.4	A
I_{DM}	Pulsed Drain Current	14 (Note 1&2)	A
P_D	Total Power Dissipation (T_A=25°C)	1.5 (Note 3)	W
	Total Power Dissipation (T_A=70°C)	1 (Note 3)	W
Rth,j-a	Thermal Resistance, Junction to Ambient	100 (Note 3)	°C/W
T_J,T_{STG}	Operating and Storage Temperature Range	-55 to +175	°C

Thermal Data

Symbol	Parameter	Max.	Units
Rthj-c	Thermal Resistance, Junction-to-Case, max	25	°C/W
Rthj-a	Thermal Resistance, Junction-to-Ambient, max	62.5*2	

Note:

1. Pulse width limited by maximum junction temperature
2. Duty cycle ≦ 1%
3. Surface mounted on 1 in2 copper pad of FR-4 borad, 270°C/W when mounted on minimum copper pad

Electrical Characteristics (T_A=25°C, unless otherwise specified)

Static

Symbol	Test Conditions	Min	Typ.	Max.	Units
BV_{DSS}	V_{GS} = 0 V , I_D = 250μA	30	--	--	V
$V_{GS(th)}$	V_{DS} = V_{GS} , I_D = 250μA	1	1.5	3	V
I_{DSS}	V_{DS} = 24 V , V_{GS} = 0 V V_{DS} = 20 V , V_{GS} = 0 V , T_j= 125°C	--	--	1 10	μA
I_{GSS}	V_{GS} = ±20 V , V_{DS} = 0	--	--	±100	nA
$I_{D(ON)}$*1	V_{DS} = 5 V , V_{GS} = 10 V	3.5	--	--	A
$R_{DS(ON)}$*1	V_{GS} = 10 V,I_D = 3.5 A V_{GS} = 4.5 V,I_D = 2 A	-- --	45 65	55 85	mΩ
G_{FS}*1	V_{DS} = 5 V,I_D = 3.5 A		5		S

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Dynamic Characteristics						
Symbol	Parameter	Test Conditions	Min	Typ.	Max.	Units
C_{ISS}	Input Capacitance	V_{DS} = 10 V, V_{GS} = 0 V, f = 1.0MHz	--	319	--	pF
C_{OSS}	Output Capacitance		--	66	--	pF
C_{RSS}	Reverse Transfer Capacitance		--	53	--	pF
Q_g*1.2	Total Gate Charge	V_{DS} = 10 V , I_D = 3.5 A, V_{GS} = 4.5 V	--	6	--	nC
Q_{gs}*1.2	Gate-Source Charge		--	0.8	--	nC
Q_{gd}*1.2	Gate-Drain Charge		--	1.8	--	nC
$t_{d(on)}$ *1.2		V_{DS} = 10 V , I_D = 1 A, V_{GS} = 10 V , R_G = 6Ω	--	8	--	ns
t_r*1.2			--	2.5	--	ns
$t_{d(off)}$ *1.2			--	20	--	ns
tf*1.2			--	5	--	ns

Source-Drain Diode						
Symbol	Parameter	Test Conditions	Min	Typ.	Max.	Units
I_S*1			--	--	2	A
I_{SM}*3			--	--	8	
V_{SD}*1		I_S = I_F , V_{GS} = 0 V	--	--	1.2	V

Notes;

1. Pulse Test: Pulse Width ≦ 300 μs, Duty Cycle ≦ 2%

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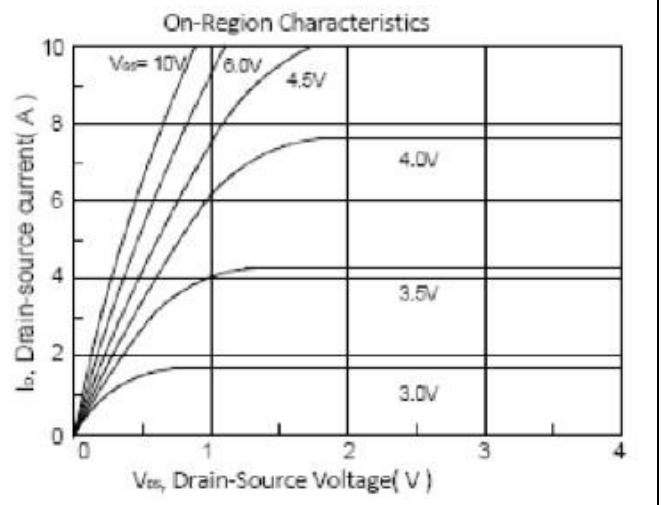
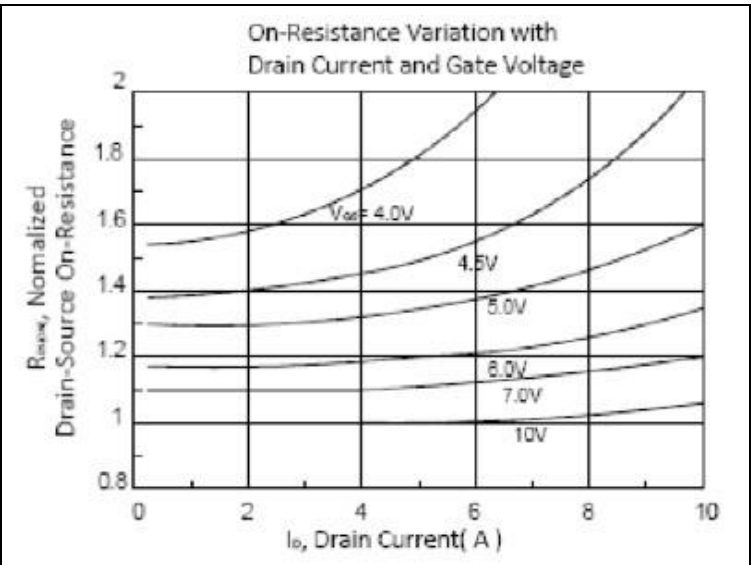
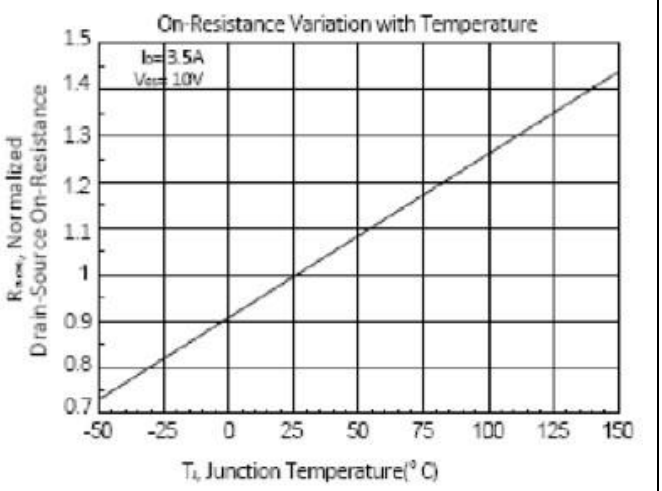
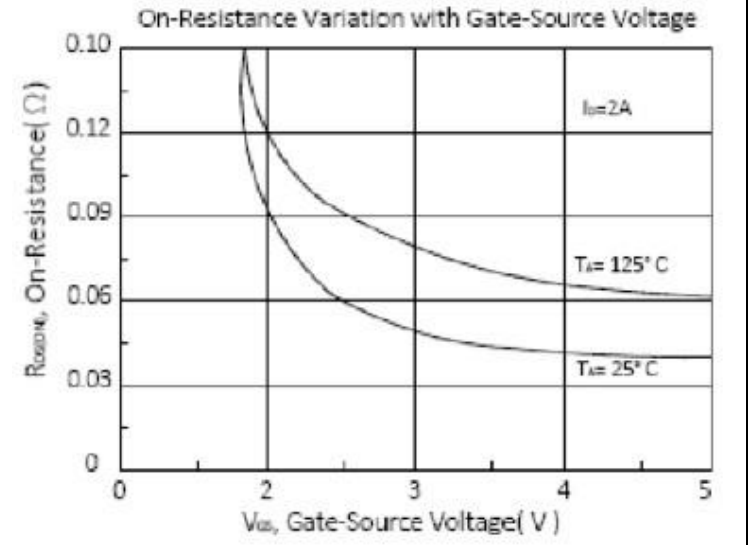
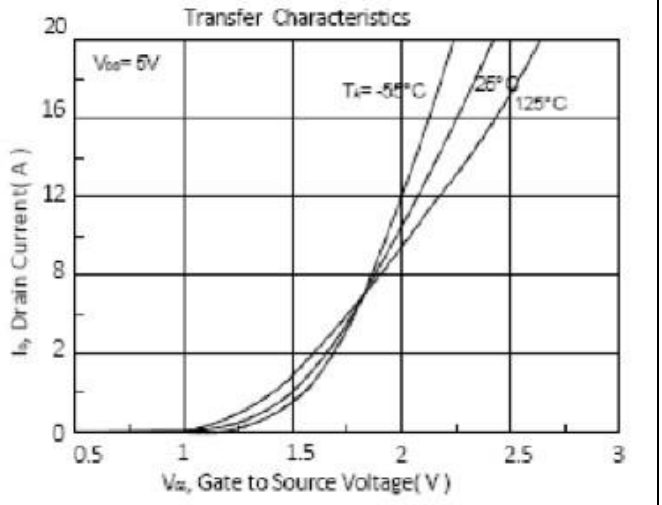
■Typical Characteristics

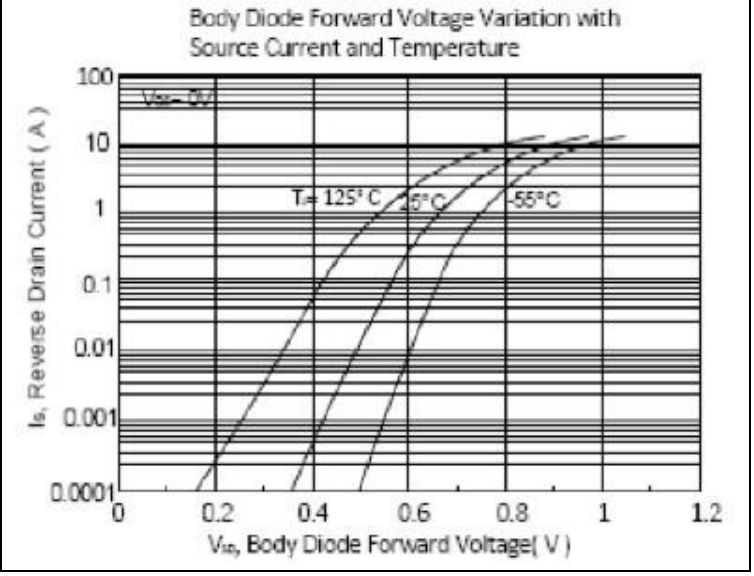












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