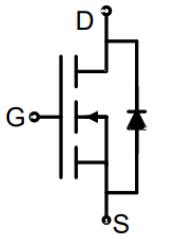
上海贝岭
SHANGHAI BELLING

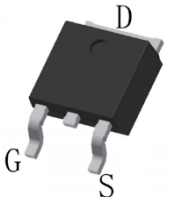
BLM055N04

Power MOSFET

1. Description

The BLM055N04 uses advanced trench technology to provide excellent RDS(ON), low gate charge. It can be used in a wide variety of applications.





TO-252

KEY CHARACTERISTICS

Parameter	Value	Unit
V_{DS}	40	V
I_D	80	A
$R_{DS(ON)}$@10V.Typ	3.4	mΩ
$R_{DS(ON)}$@4.5V.Typ	4.5	mΩ

FEATURES

- Advanced Trench Technology
- Excellent RDS(ON) and Low Gate Charge
- LeadFree

APPLICATIONS

- LoadSwitch
- PWMApplication
- PowerManagement

100% UIS TESTED!
100% ΔVds TESTED!

ORDERING INFORMATION

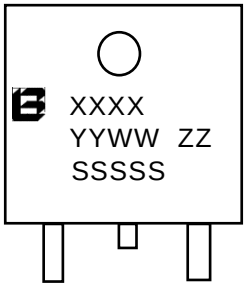
Device Marking	Ordering Codes	Package	Product Code	Packing
M055N04	BLM055N04-D	TO-252	BLM055N04	Reel

BLM055N04-D

(2) Package type

(1) Chip name

(1)BLM055N04:40V 5.5mΩ



XXXX：Device Marking

YYWW：Year&Week

ZZ：Assembly Code

SSSSS：Lot Code

2. ABSOLUTE RATINGS

at T_C = 25°C, unless otherwise specified

Symbol	Parameter	Rating	Units
V_{DSS}	Drain-to-Source Voltage	40	V
I_D	Continuous Drain Current	80	A
$I_{DM(Note1)}$	Pulsed Drain Current	320	A
P_D	Power Dissipation	64.1	W
V_{GS}	Gate-to-Source Voltage	±20	V
E_{AS}	Single Pulse Avalanche Energy(Note2)	110.3	mJ
T_J, T_{stg}	Operating Junction and Storage Temperature Range	–55 to 150	℃

3. Thermal characteristics

Symbol	Parameter	RATINGS	Units
$R_{\theta JC}$	Junction-to- Case	1.95	℃/W

4. Electrical Characteristics

at T_C = 25°C, unless otherwise specified

OFF Characteristics

Symbol	Parameter	Test Conditions	Values			Units
			Min.	Typ.	Max.	
V_{DSS}	Drain to Source Breakdown Voltage	V_{GS}=0V, I_D=250μA	40	--	--	V
I_{DSS}	Drain to Source Leakage Current	V_{DS} =40V, V_{GS}= 0V	--	--	1	μA
I_{GSS}	Gate to Source Forward Leakage	V_{GS} =±20V	--	--	100	nA

ON Characteristics

Symbol	Parameter	Test Conditions	Values			Units
			Min.	Typ.	Max.	
$R_{DS(ON)}$ (Note3)	Drain-to-Source On-Resistance	VGS=10V, ID=30A,	--	3.4	5.5	mΩ
		VGS=4.5V, ID=20A,	--	4.5	10	
$V_{GS(TH)}$	Gate Threshold Voltage	VDS = VGS, ID = 250μA(Note2)	1	1.5	2.5	V

Dynamic Characteristics

Symbol	Parameter	Test Conditions	Values			Units
			Min.	Typ.	Max.	
C_{iss}	Input Capacitance	VGS = 0V VDS = 15V f = 1.0MHz	--	2241	--	pF
C_{oss}	Output Capacitance		--	160	--	
C_{rss}	Reverse Transfer Capacitance		--	149	--	

Switching Characteristics

Symbol	Parameter	Test Conditions	Values			Units
			Min.	Typ.	Max.	
$t_{d(ON)}$	Turn-on Delay Time	VDD = 20V ID=2A RL =1Ω RGEN =3Ω VGS = 10V	--	8	--	ns
tr	Rise Time		--	18	--	
$t_{d(OFF)}$	Turn-Off Delay Time		--	24	--	
t_f	Fall Time		--	14	--	
Q_g	Total Gate Charge	ID =40A VDD =10V VGS = 10V	--	80.4	--	nC
Q_{gd}	Gate to Drain (“Miller”)Charge		--	11.2	--	
Q_{gs}	Gate to Source Charge		--	15	--	

Source-Drain Diode Characteristics

Symbol	Parameter	Test Conditions	Values			Units
			Min.	Typ.	Max.	
I_S	Continuous Source Current (Body Diode)	TC=25 °C	--	--	80	A
V_{SD}	Diode Forward Voltage	IS=20A, VGS=0V(Note2)	--	--	1.2	V

Note1: Pulse width limited by maximum junction temperature
Note2: Eas condition：Tj=25℃， VG=10V,L=0.5mH,Ias=21A
Note3: Pulse width tp≤300μs, δ≤2%

5. Characteristics Curves

Figure 1 Output Characteristics

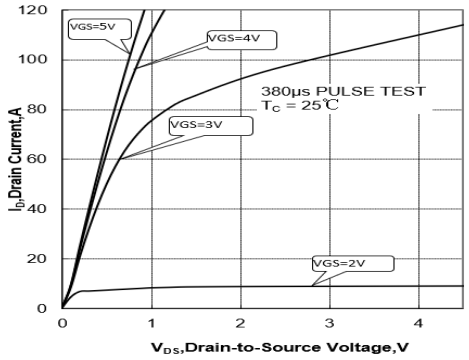


Figure 2 Transfer Characteristics

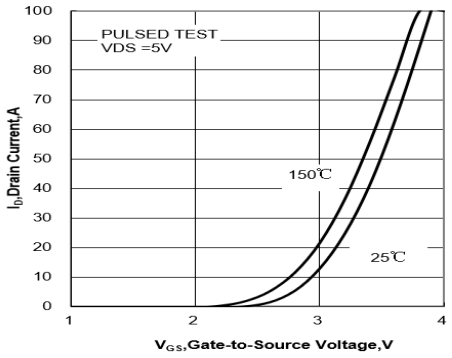


Figure 3 On-Resistance vs. I_D

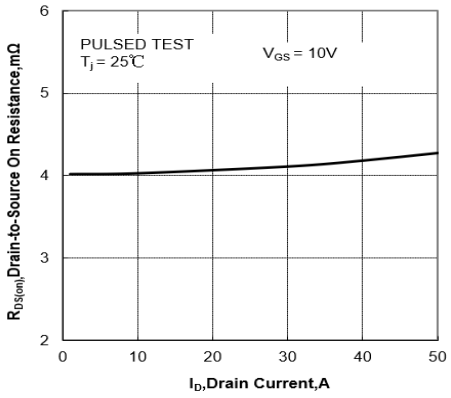


Figure 4 On-Resistance vs. Junction Temperature

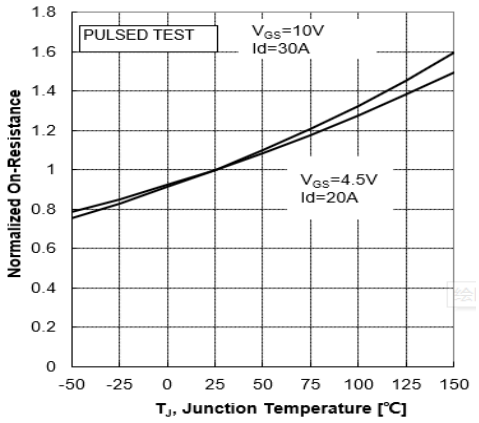


Figure 5 BV vs Junction Temperature

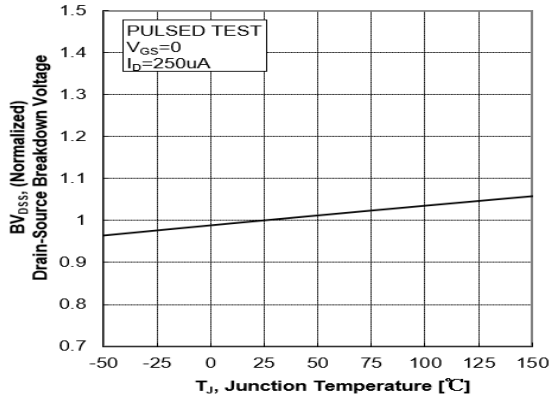


Figure 6 Vth vs Junction Temperature

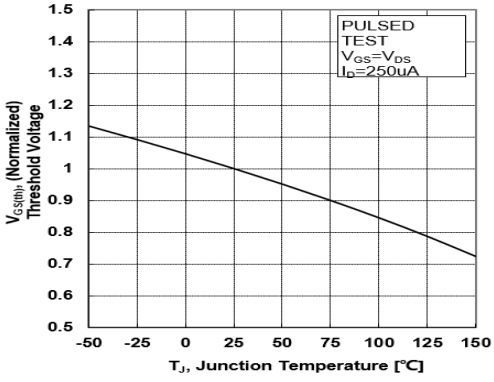


Figure 7 Gate-Charge Characteristics

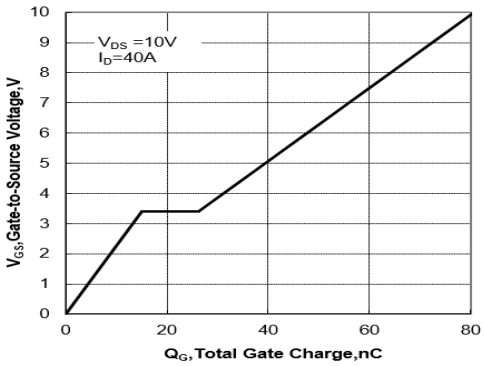


Figure 8 Capacitance Characteristics

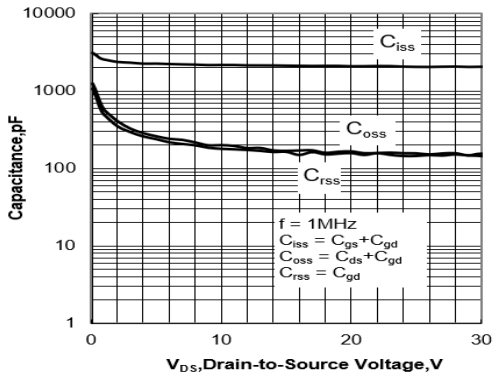


Figure 9 Body Diode Forward Voltage

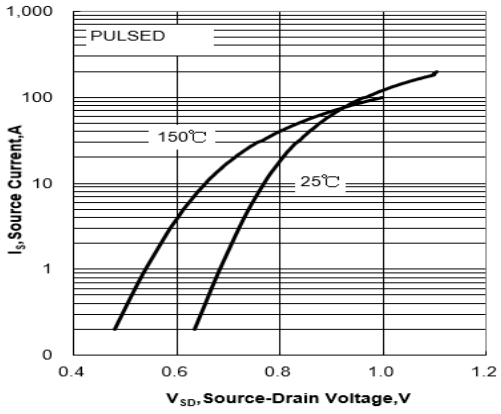


Figure 10 Maximum Safe Operating Area

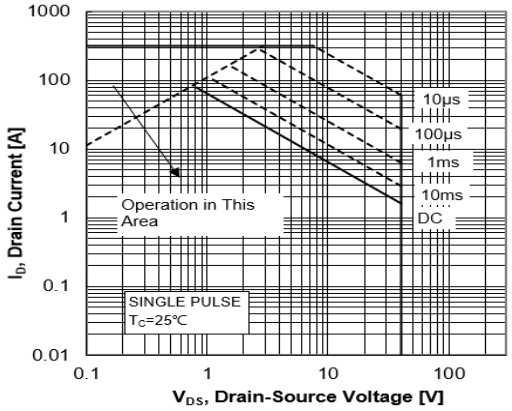
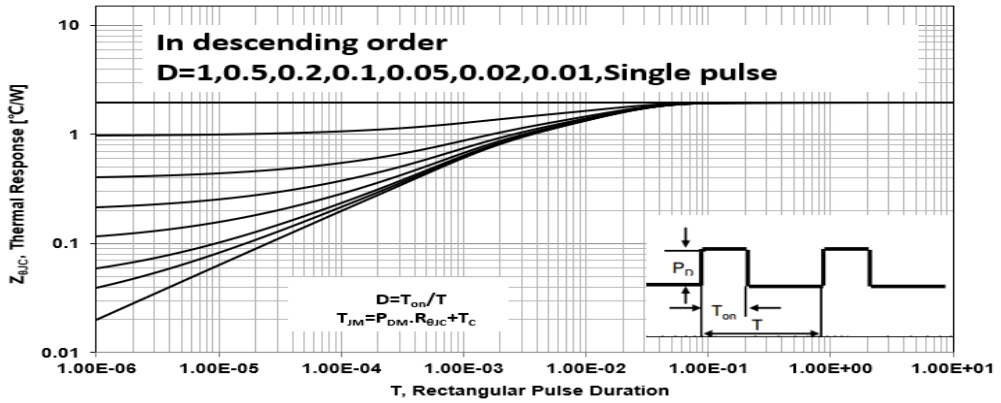
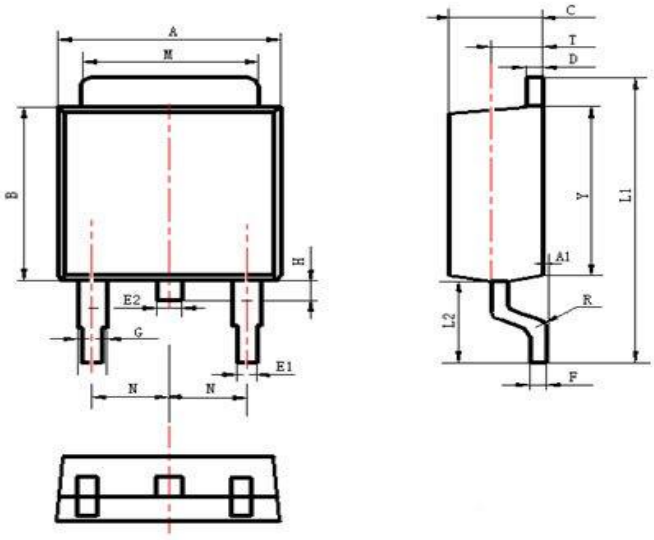


Figure 11 Transient Thermal Impedance



Package Description



Items	Values(mm)	
	MIN	MAX
A	6.30	6.90
A1	0	0.13
B	5.70	6.30
C	2.10	2.50
D	0.30	0.60
E1	0.60	0.90
E2	0.70	1.00
F	0.30	0.60
G	0.70	1.20
L1	9.60	10.50
L2	2.70	3.10
H	0.60	1.00
M	5.10	5.50
N	2.09	2.49
R	0 .3	
T	1.40	1.60
Y	5.10	6.30

TO-252 Package

NOTE:

1. Exceeding the maximum ratings of the device in performance may cause damage to the device, even the permanent failure, which may affect the dependability of the machine. Please do not exceed the absolute maximum ratings of the device when circuit designing.
2. When installing the heat sink, please pay attention to the torsional moment and the smoothness of the heat sink.
3. MOSFETs is the device which is sensitive to the static electricity, it is necessary to protect the device from being damaged by the static electricity when using it.
4. Shanghai Belling reserves the right to make changes in this specification sheet and is subject to change without prior notice.

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