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### **Product Specification**

Dual N-Channel Logic Level Enhancement Mode Power MOSFET

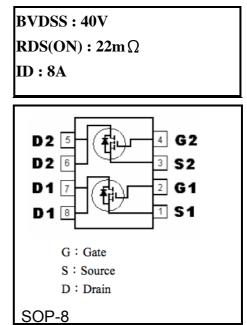
#### MSB22A04Q8

#### Description

The MSB22A04Q8 provides the designer with the best combination of fast switching, ruggedized device design, low on-resistance and cost effectiveness. The SOP-8 package is universally preferred for all commercial-industrial surface mount applications and suited for low voltage applications such as DC/DC converters.

#### •FEATURES:

- RDS(ON)=22mΩ@VGS=10V, ID=8A
- Simple drive requirement
- Low on-resistance
- Fast switching speed
- Dual N-ch MOSFET package
- Pb-free lead plating and Halogen-free package



### Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit		
Drain-Source Voltage		VDS	40	v	
Gate-Source Voltage	Vgs	±20			
Continuous Drain Current @ Tc=25°C		ID	8	Α	
Continuous Drain Current @ Tc=100°C		ID	7		
Pulsed Drain Current		Idm	32 *1		
Total Power Dissipation	TA=25°C		2.4	w	
	T <sub>A</sub> =100°C	PD	1.3		
Operating Junction and Storage Temperature Range		Tj, Tstg	-55~+175	°C	

### **Thermal Data**

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-case, max	Rth,j-c	25	°C/W
Thermal Resistance, Junction-to-ambient, max	Rth.j-a	62.5 *2	°C/W

Note: 1. Pulse width limited by maximum junction temperature

2. Surface mounted on 1 in<sup>2</sup> copper pad of FR-4 board, 125°C/W when mounted on minimum copper pad

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#### Characteristics (Tc=25°C, unless otherwise specified)

Symbol	Min.	Тур.	Max.	Unit	Test Conditions	
Static					·	
BVDSS	40	-	-	V	V <sub>GS</sub> =0V, I <sub>D</sub> =250µA	
V <sub>GS(th)</sub>	1	1.7	3	V	$V_{DS} = V_{GS}, I_D = 250 \mu A$	
I <sub>GSS</sub>	-	-	±100	nA	$V_{GS}=\pm 20$	
T	-	-	1	μA	$V_{DS} = 32V, V_{GS} = 0V$	
I <sub>DSS</sub>	-	-	25		V <sub>DS</sub> =30V, V <sub>GS</sub> =0V, Tj=125°C	
I <sub>D(ON)</sub> *1	8	-	-	A	$V_{DS} = 5V, V_{GS} = 10V$	
Descore to	- 20 22 mΩ	mΩ	$V_{GS} = 10V, I_D = 8A$			
<b>R</b> <sub>DS(ON)</sub> *1	-	<u>30</u> 37 mΩ	mΩ	V <sub>GS</sub> =4.5V, I <sub>D</sub> =5A		
Gfs *1	-	20	-	S	V <sub>DS</sub> =5V, I <sub>D</sub> =8A	
Dynamic						
Ciss	-	1205	-			
Coss	-	80	-	] pF	$V_{GS}=0V, V_{DS}=20V, f=1MHz$	
Crss	-	57	-			
Qg *1, 2	-	11	-			
Qgs *1,2	-	1.8	-	] nC	$V_{DS}=20V, V_{GS}=10V, I_D=7A$	
Qgd *1, 2	-	4.1	-	]		

## Characteristics (Tc=25°C, unless otherwise specified)

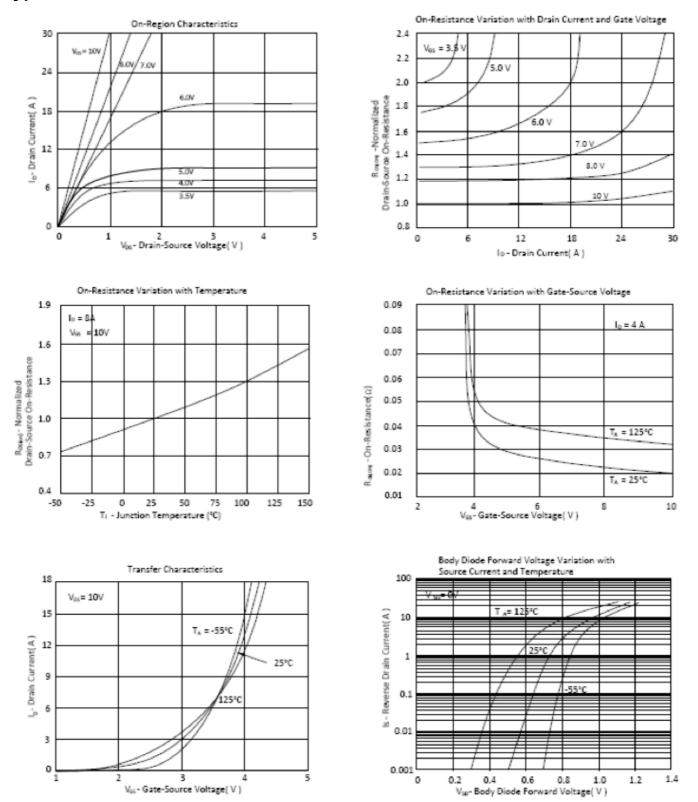
Symbol	Min.	Тур.	Max.	Unit	Test Conditions
td(ON) *1, 2	-	3.5	-		
tr *1, 2	-	9.5	-	]	$V_{DS}=20V$ , $I_{D}=1A$ , $V_{GS}=10V$ ,
td(OFF) *1,2	-	15	-	ns	$R_{GS}=6\Omega$
tf *1,2	-	6	-		
Source-Drain Diode					
Is *1	-	-	8		
I <sub>SM</sub> *3	-	-	24	A	
V <sub>SD</sub> *1	-	-	1.3	V	IF=Is, VGS=0V

Note : \*1.Pulse Test : Pulse Width ≤300µs, Duty Cycle≤2%

\*2.Independent of operating temperature

\*3.Pulse width limited by maximum junction temperature.

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Typical Characteristics



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