

## MSQ99N26

### Dual N-Channel 20-V (D-S) MOSFET

#### Description

These miniature surface mount MOSFETs utilize a high cell density trench process to provide low RDS (on) and to ensure minimal power loss and heat dissipation. Typical applications are DC-DC converters and power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

#### Features

- Low RDS(on) provides higher efficiency and Extends battery life
- Low thermal impedance copper lead frame
- SOIC-8PP saves board space
- Fast switching speed
- High performance trench technology
- RoHS compliant package

**Package type :** SO-8

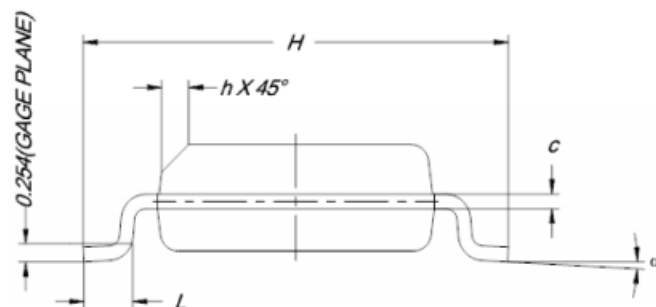
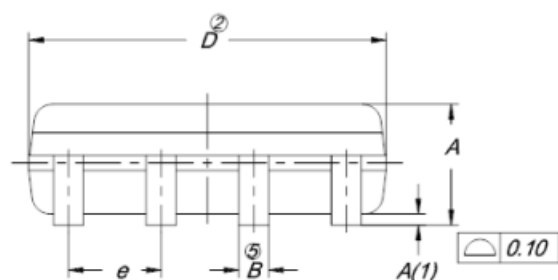
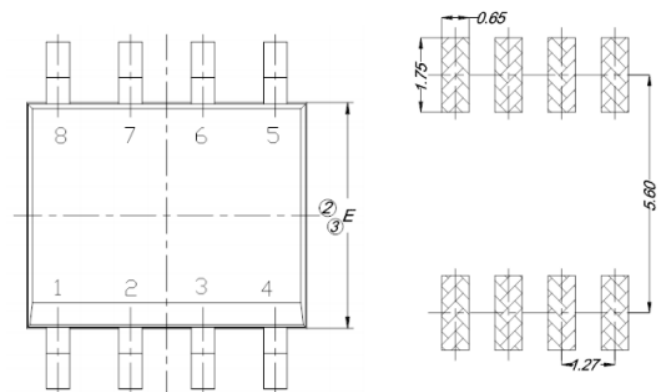
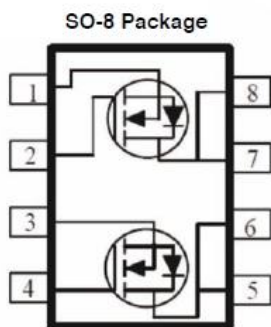
#### Packing & Order Information

3,000/Reel



**RoHS  
COMPLIANT**

Graphic symbol



DIM.	MILLIMETERS		
	MIN.	NOM.	MAX.
A	1.35	1.55	1.75
A(1)	0.10	0.18	0.25
B	0.38	0.45	0.51
C	0.19	0.22	0.25
D	4.80	4.90	5.00
E	3.80	3.90	4.00
e	1.27 BSC		
H	5.80	6.00	6.20
L	0.50	0.72	0.93
α	0°	4°	8°
h	0.25	0.38	0.50

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#### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

##### Absolute Maximum Ratings (T<sub>C</sub>=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V <sub>DS</sub>	Drain-Source Voltage	20	V
V <sub>GS</sub>	Gate-Source Voltage	±12	V
I <sub>D</sub>	Drain Current -Continuous (TC=25°C)	6	A
	Drain Current -Continuous (TC=70°C)	5	A
I <sub>DM</sub>	Drain Current Pulsed	±30	A
I <sub>S</sub>	Continuous Source Current (Diode Conduction)	1.7	A
P <sub>D</sub>	Power Dissipation (TC=25°C)	2.1	W
	Power Dissipation (TC=70°C)	1.3	
T <sub>J</sub> ,T <sub>STG</sub>	Operating and Storage Temperature Range	-55 to +150	°C

##### Thermal Resistance Characteristics

Symbol	Parameter	Value	Units
R <sub>θJA</sub>	Maximum Junction-to-Ambient <sup>a</sup> ( t ≤ 10 sec)	62.5	°C/W
	Maximum Junction-to-Ambient <sup>a</sup> (Steady State)	80	

##### Notes

- Surface Mounted on 1" x 1" FR4 Board.
- Pulse width limited by maximum junction temperature

##### Static Characteristics

Symbol	Test Conditions	Min	Typ.	Max.	Units
V <sub>GS</sub>	V <sub>GS</sub> = V <sub>DS</sub> , I <sub>D</sub> =250uA	0.7	--	--	V
r <sub>DS(on)</sub>	V <sub>GS</sub> = 4.5 V , I <sub>D</sub> = 6 A V <sub>GS</sub> = 2.5 V , I <sub>D</sub> = 5 A	--	--	30 40	mΩ
I <sub>DSS</sub>	V <sub>DS</sub> = 16 V , V <sub>GS</sub> = 0 V V <sub>DS</sub> = 16 V , V <sub>GS</sub> = 0 V , T <sub>J</sub> = 55°C	--	--	1 25	uA
I <sub>GSS</sub>	V <sub>GS</sub> = ±12 V , V <sub>DS</sub> = 0 V	--	--	±100	nA
I <sub>D(on)</sub>	V <sub>GS</sub> = 4.5 V , V <sub>DS</sub> = 5 V	20	--	--	A
V <sub>SD</sub>	V <sub>GS</sub> = 0 V , I <sub>S</sub> = 1.7 A	--	0.7	--	V
G <sub>fs</sub>	V <sub>DS</sub> = 10 V , I <sub>D</sub> = 6 A	--	22	--	S

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Dynamic Characteristics					
Symbol	Test Conditions	Min	Typ.	Max.	Units
$t_{d(on)}$	$V_{DD} = 15\text{ V}, I_D = 1\text{ A}, R_L = 15\ \Omega$ $V_{GEN} = 4.5\text{ V}$	--	22	--	ns
$t_r$		--	40	--	ns
$t_{d(off)}$		--	50	--	ns
$t_f$		--	20	--	ns
$Q_g$	$V_{DS} = 15\text{ V}, I_D = 6\text{ A},$ $V_{GS} = 4.5\text{ V}$	--	7.4	--	nC
$Q_{gs}$		--	0.9	--	nC
$Q_{gd}$		--	2.0	--	nC

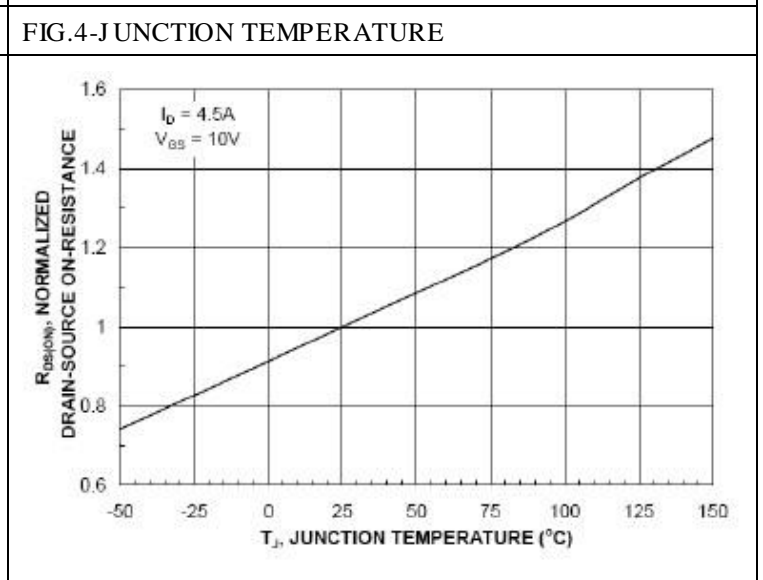
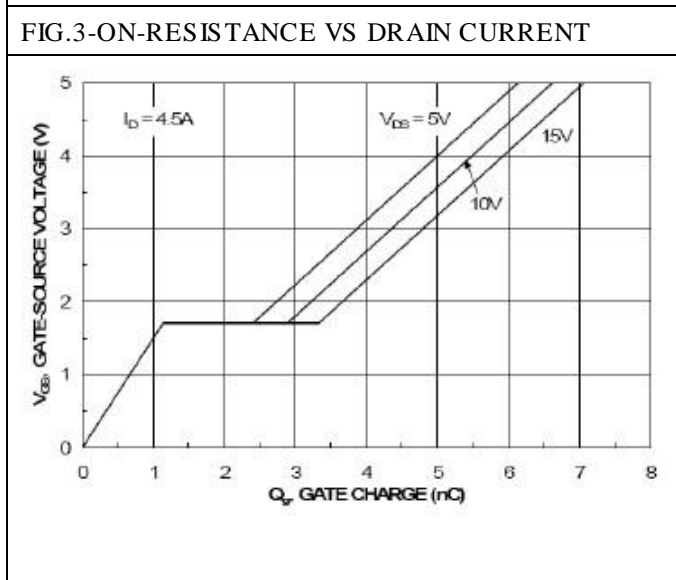
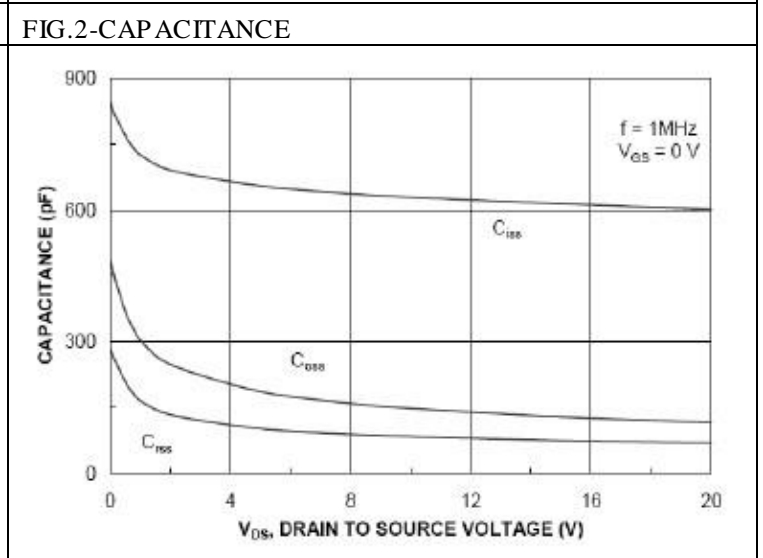
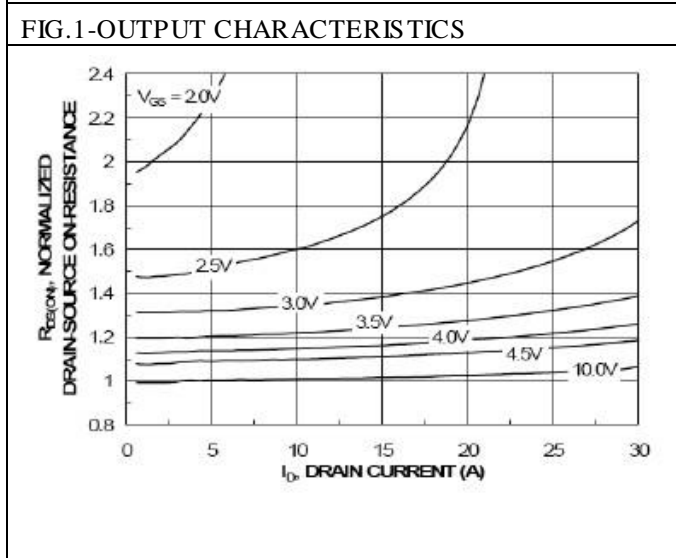
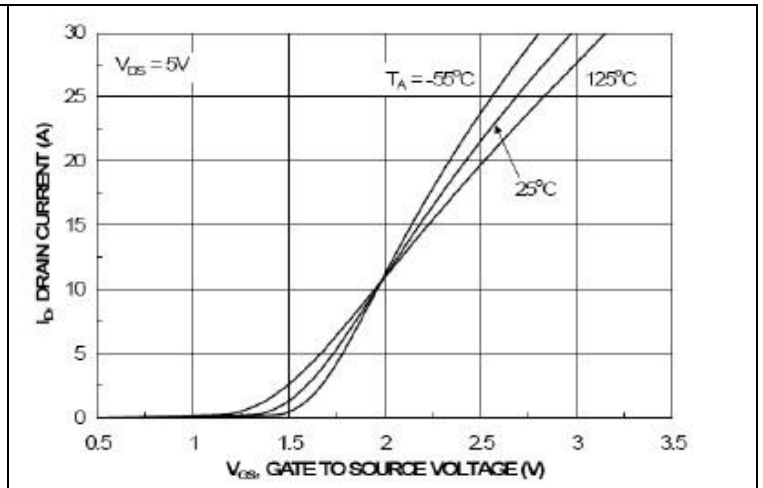
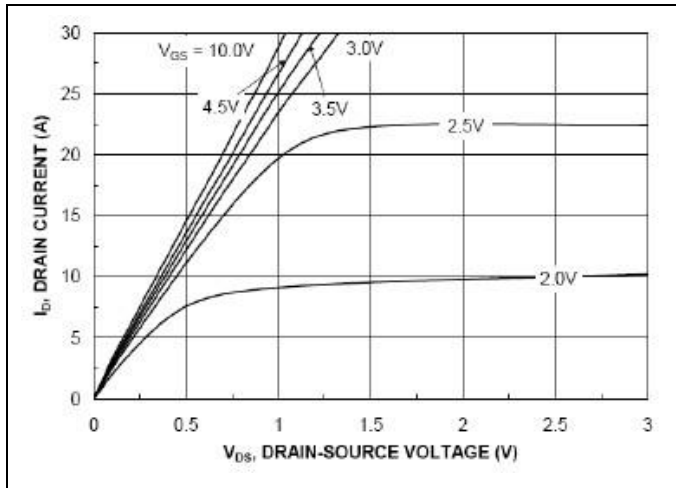
#### Notes

- Pulse test:  $PW \leq 300\ \mu s$  duty cycle  $\leq 2\%$ .
- Guaranteed by design, not subject to production testing.

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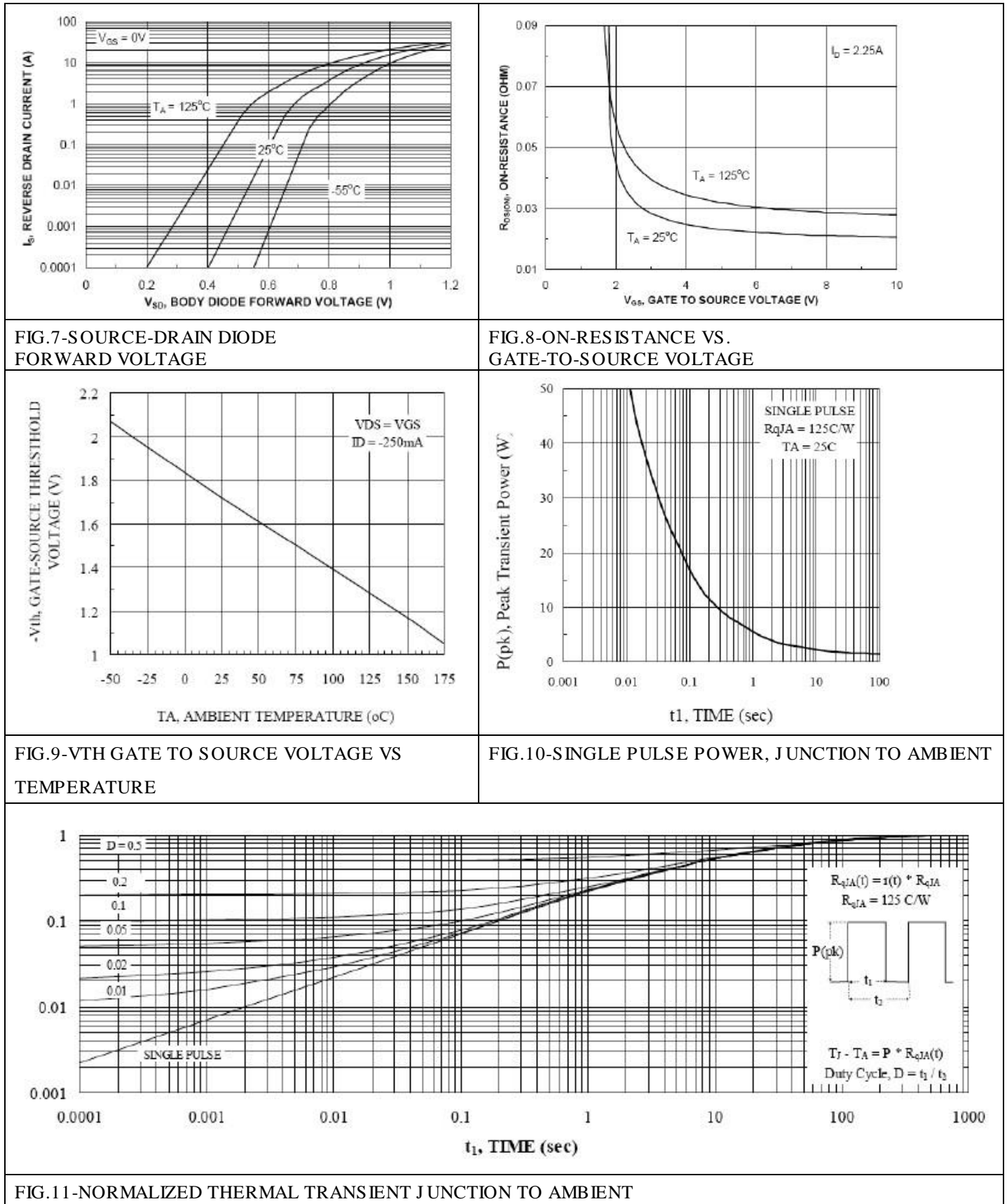
#### Characteristics Curve



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### Dual N-Channel 20-V (D-S) MOSFET

#### Characteristics Curve



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#### Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE

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