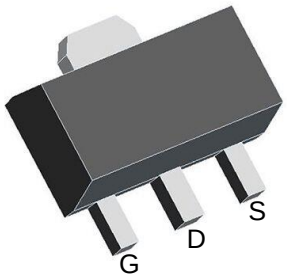
Description：

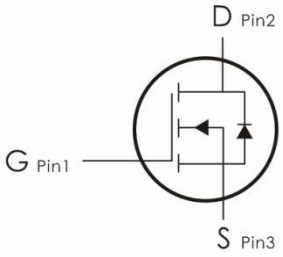
This N-Channel MOSFET uses advanced trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge.

It can be used in a wide variety of applications.



Features：

1) V_{DS}=30V,I_D=9A,$R_{DS(ON)}$<25m Ω @V_{GS}=10V
2) Low gate charge.
3) Green device available.
4) Advanced high cell denity trench technology for ultra low $R_{DS(ON)}$.
5) Excellent package for good heat dissipation.



Package Marking and Ordering Information：

Part NO.	Marking	Package	Packing
DOW9N03	9N03	SOT-89	1000 pcs/Reel

Absolute Maximum Ratings： (T_C=25℃ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Continuous Drain Current	9	A
I_{DM}	Pulsed Drain Current [1]	30	
P_D	Power Dissipation	3.2	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55-+150	℃

Thermal Characteristics：

Symbol	Parameter	Max	Units
$R_{\theta JA}$	Thermal Resistance,Junction to Ambient [2]	39	℃/W

Electrical Characteristics: (T_C=25℃ unless otherwise noted)

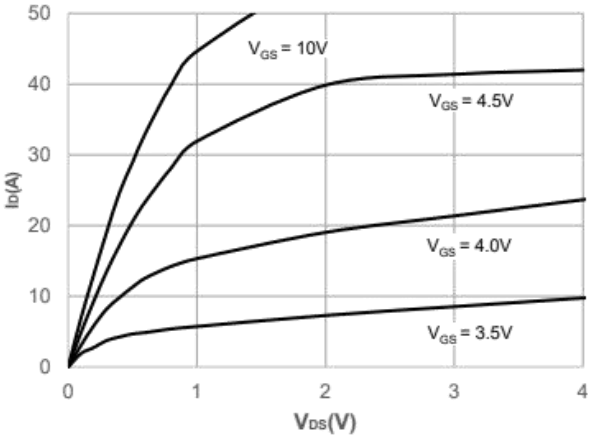
Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Sourtce Breakdown Voltage	V_{GS}=0V,I_D=250μA	30	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS}=0V, V_{DS}=30V	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V, V_{DS}=0A	---	---	±100	nA
On Characteristics						
$V_{GS(th)}$	GATE-Source Threshold Voltage	V_{GS}=V_{DS}, I_D=250μA	1.1	1.7	2.2	V
$R_{DS(ON)}$	Drain-Source On Resistance	V_{GS}=10V,I_D=6A	---	18.5	25	mΩ
		V_{GS}=4.5V,I_D=4A	---	24	38	mΩ
Dynamic Characteristics						
C_{iss}	Input Capacitance[4]	V_{DS}=15V, V_{GS}=0V, f=1MHz	---	471	---	pF
C_{oss}	Output Capacitance[4]		---	72	--	
C_{rss}	Reverse Transfer Capacitance[4]		---	55	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time[5]	V_{DS}=15V, I_D=3A, R_{ENG}=3Ω ,V_{GS}=10V	---	3.8	---	ns
t_r	Rise Time[5]		---	10	---	ns
$t_{d(off)}$	Turn-Off Delay Time[5]		---	13	---	ns
t_f	Fall Time[5]		---	1.9	---	ns
Q_g	Total Gate Charge[5]	V_{GS}=4.5V, V_{DS}=15V, I_D=5.8A	---	9.5	---	nc
Q_{gs}	Gate-Source Charge[5]		---	1.9	---	nc
Q_{gd}	Gate-Drain “Miller” Charge[5]		---	2.1	---	nc
Drain-Source Diode Characteristics						
I_S	Continuous Drain Curren[2]	VD=VG=0V	---	---	9	A
I_{SM}	Pulsed Drain Current		---	---	30	A
V_{SD}	Diode Forward Voltage[3]	V_{GS}=0V, I_{SD}=5.8A	0.5	0.86	1.1	V

Note:

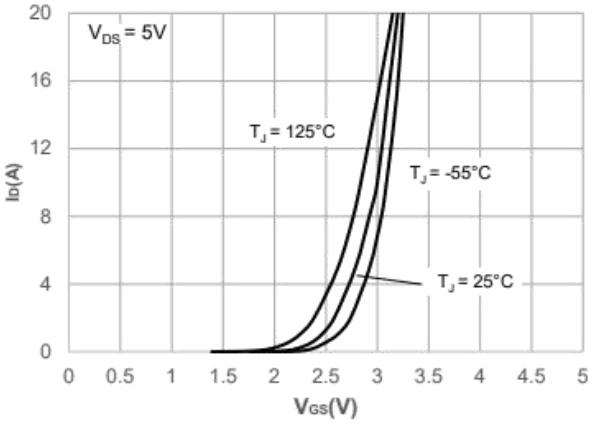
1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production

Typical Characteristics：

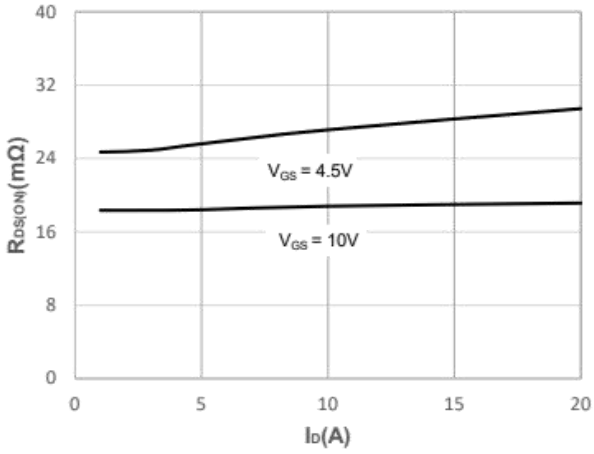
(T_C=25℃ unless otherwise noted)



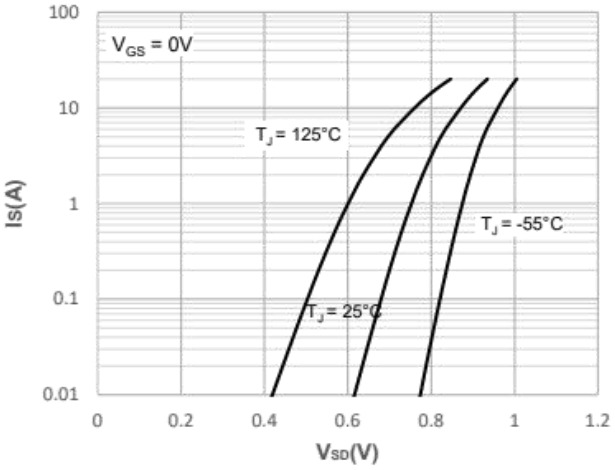
Output Characteristics



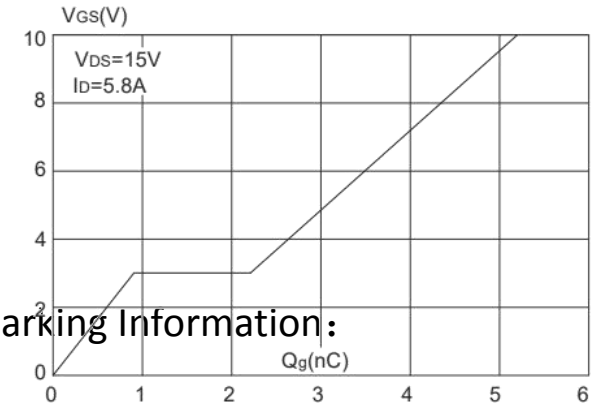
Typical Transfer Characteristics



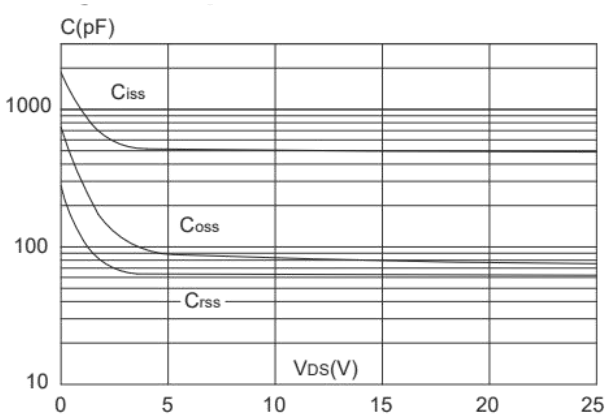
On-resistance vs. Drain Current



Body Diode Characteristics

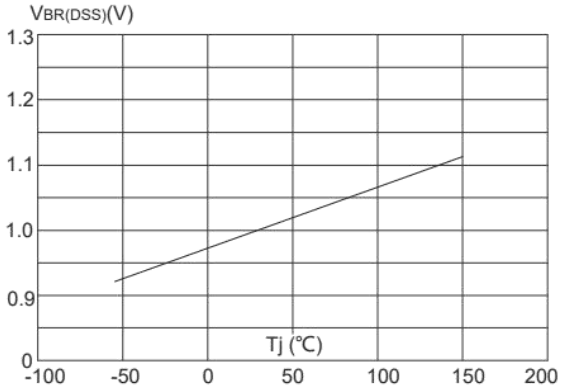


Gate Charge Characteristics



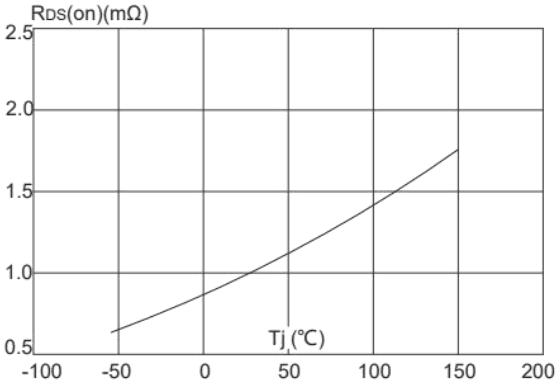
Capacitance Characteristics

Marking Information：



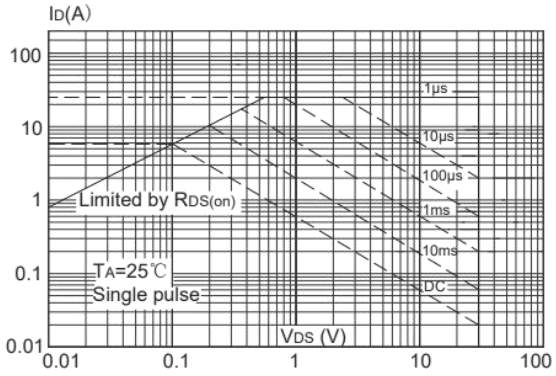
Normalized Breakdown Voltage vs.

Junction Temperature

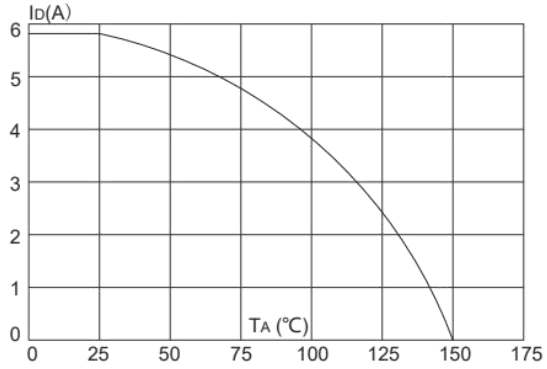


Normalized on Resistance vs.

Junction Temperature

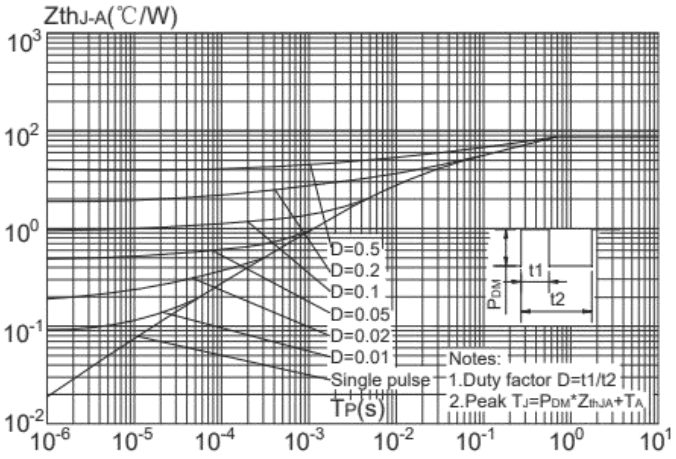


Maximum Safe Operating Area



Maximum Continuous Drain Current vs.

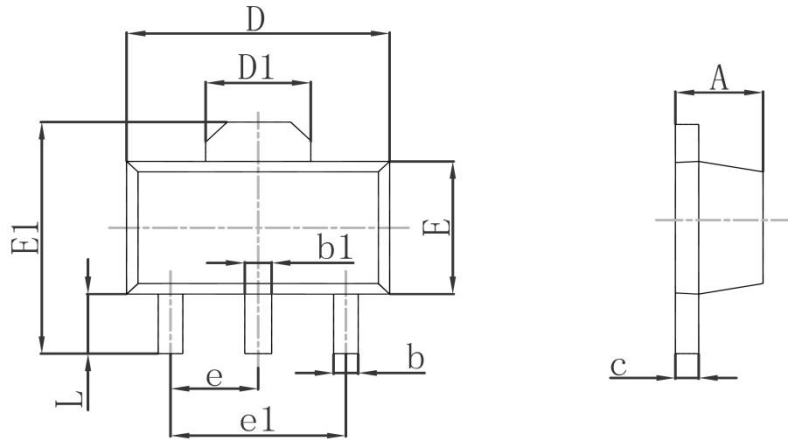
Case Temperature



Maximum Effective Transient

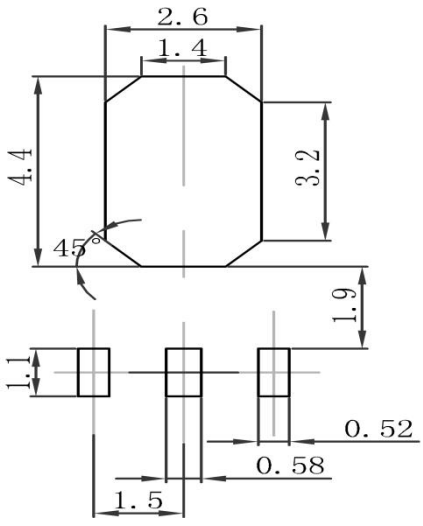
Thermal Impedance, Junction-to-Case

SOT-89 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550REF		0.061REF	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500TYP		0.060TYP	
e1	3.000TYP		0.118TYP	
L	0.900	1.200	0.035	0.047

SOT-89 Suggested Pad Layout



Note:

1.Controlling dimension: in millimeters

2.General tolerance: ±0.05mm

3.The pad layout is for reference purposes only

UNIT: mm

Marking Information：

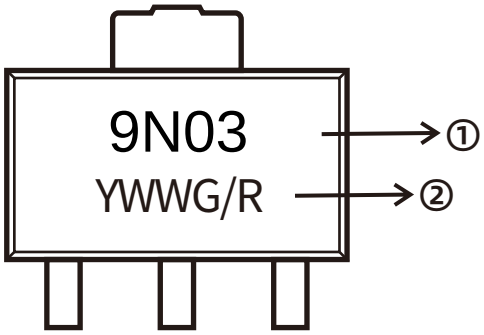
①. Part NO.

②. Date Code(YWWG / R)

Y：Year Code，last digit of the year

WW：Week Code(01-53)

G/R：G(Green) /R(Lead Free)



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