

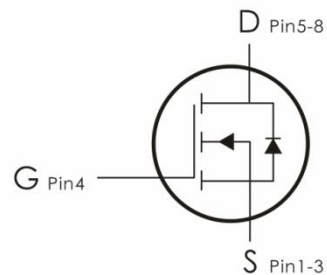
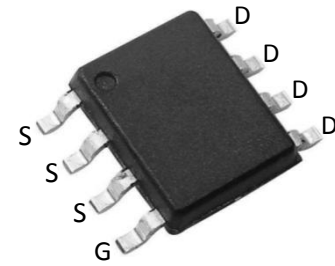
Description:

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) $V_{DS}=30V, I_D=30A, R_{DS(on)} < 4.2m\Omega @ V_{GS}=10V$
- 2) Low gate charge.
- 3) Green device available.
- 4) Advanced high cell density 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
DOS30N03	30N03	SOP-8	3000 pcs/Reel

Absolute Maximum Ratings: ($T_C=25^{\circ}C$ 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	30	A
	Continuous Drain Current- $T_C=100^{\circ}C$	19	
I_{DM}	Pulsed Drain Current ¹	120	
P_D	Power Dissipation	7	W
E_{AS}	Single pulse avalanche energy ²	125	mJ
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55-+175	$^{\circ}C$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	62	$^{\circ}C/W$

R_{θJC}	Thermal Resistance, Junction to Case	18	°C/W
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Electrical Characteristics: (T_C=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250 μ A	30	---	---	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} =0V, V _{DS} =30V	---	---	1	μ A
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 =250 μ A	1.2	1.6	2.5	V
R _{DS(ON)}	Drain-Source On Resistance ³	V _{GS} =10V, I _D =12A	---	3.8	4.2	m Ω
		V _{GS} =4.5V, I _D =2A	---	5.2	6	m Ω
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz	---	2679	---	pF
C _{oss}	Output Capacitance		---	392	---	
C _{rss}	Reverse Transfer Capacitance		---	329	---	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DS} =15V, I _D =30A, R _{ENG} =3 Ω ,V _{GS} =10V	---	22	---	ns
t _r	Rise Time		---	27	---	ns
t _{d(off)}	Turn-Off Delay Time		---	73	---	ns
t _f	Fall Time		---	35	---	ns
Q _g	Total Gate Charge	V _{GS} =10 V, V _{DS} =15V, I _D =30A	---	29	---	nC
Q _{gs}	Gate-Source Charge		---	7.1	---	nC
Q _{gd}	Gate-Drain “Miller” Charge		---	10.3	---	nC
Drain-Source Diode Characteristics						
V _{SD}	Diode Forward Voltage ³	V _{GS} =0V, I _{SD} =1A	---	---	1	V
I _S	Continuous Drain Curren	VD=VG=0V	---	---	30	A
I _{SM}	Pulsed Drain Current ³		---	---	120	A

Notes:

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. $V_{DD}=25V, V_{GS}=10V, L=0.1mH, I_{AS}=50A, R_G=25\Omega$, Starting $T_J=25^\circ C$.
3. The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
4. Essentially independent of operating temperature

Typical Characteristics: ($T_C=25^\circ C$ unless otherwise noted)

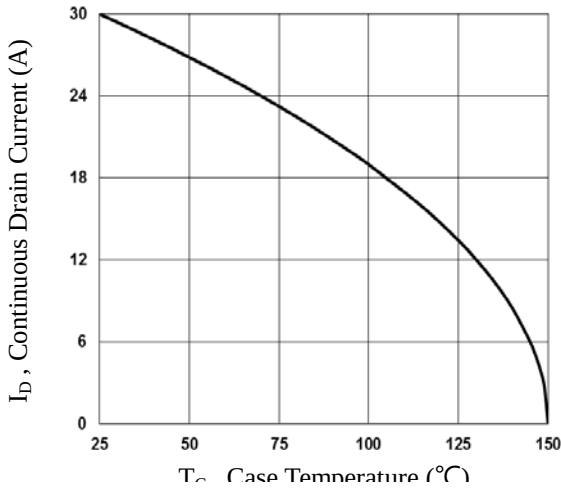


Fig.1 Continuous Drain Current vs. T_C

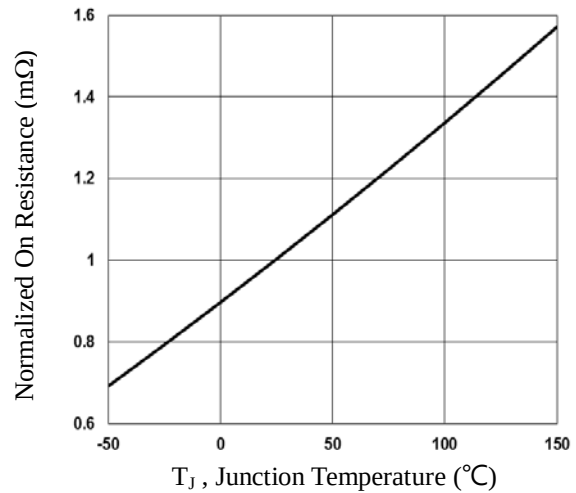


Fig.2 Normalized $R_{DS(on)}$ vs. T_J

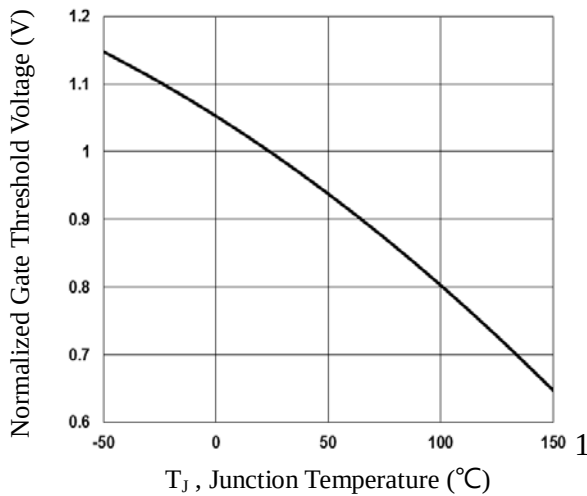


Fig.3 Normalized V_{th} vs. T_J

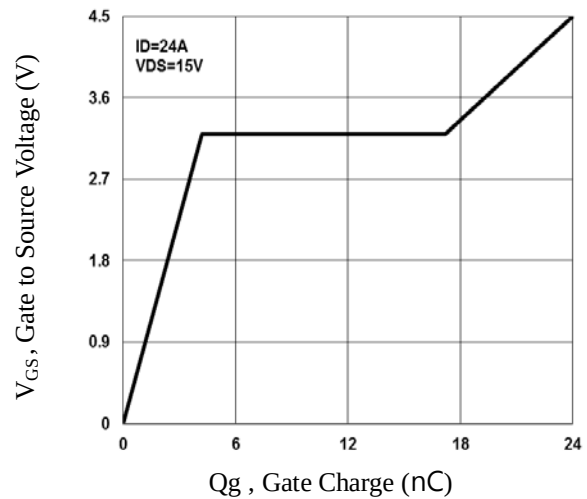


Fig.4 Gate Charge Waveform

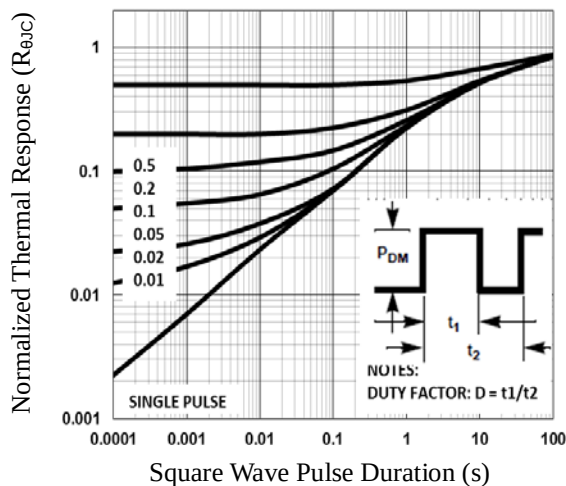


Fig.5 Normalized Transient Impedance

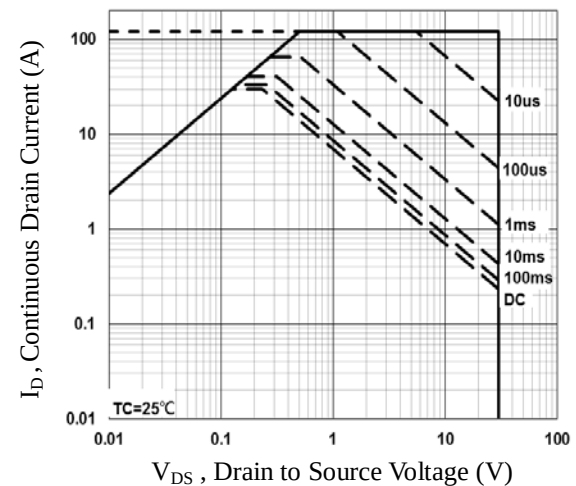


Fig.6 Maximum Safe Operation Area

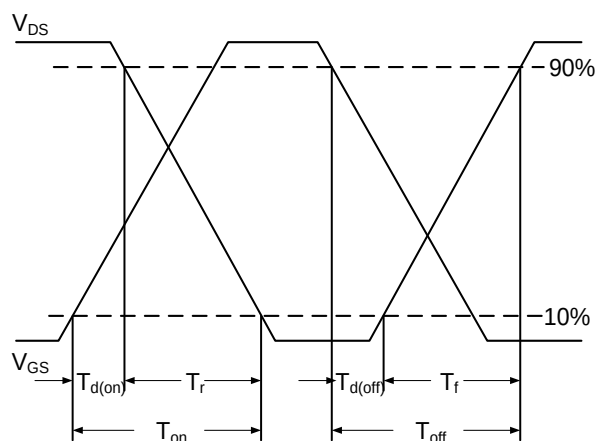


Fig.7 Switching Time Waveform

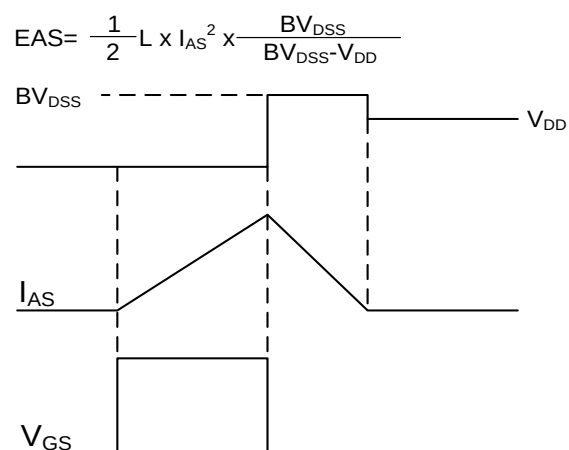
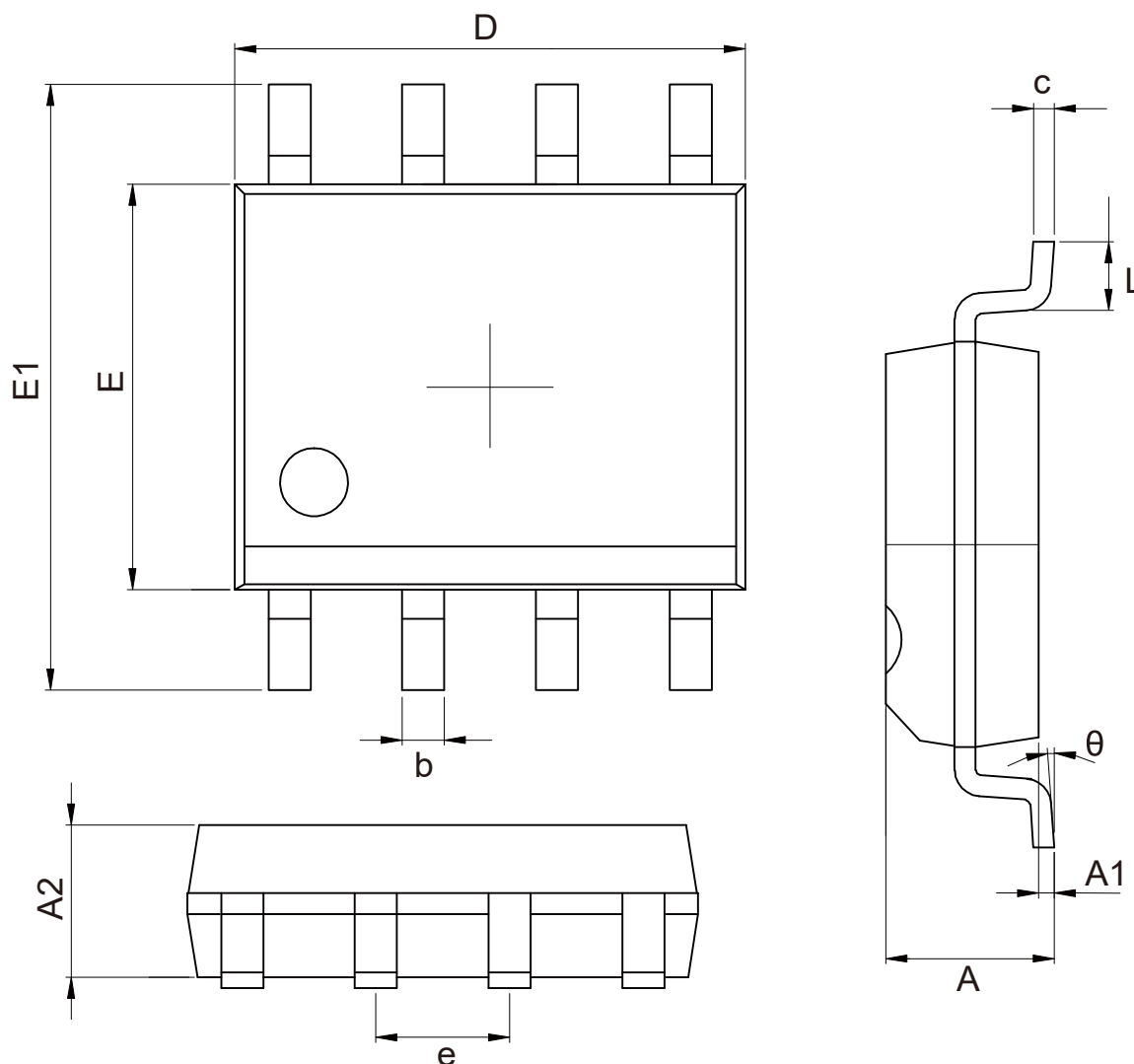


Fig.8 EAS Waveform

SOP-8 Package Information:



COMMON DIMENSIONS			
CUNITS MEASURE=MILLIMETER			
SYMBOL	MIN	NOM	MAX
A	1.350	—	1.750
A1	0.100	—	0.250
A2	1.350	—	1.550
b	0.330	—	0.510
c	0.170	—	0.250
D	4.700	—	5.100
E	3.800	3.900	4.000
E1	5.800	—	6.200
e	1.270BSC		
L	0.400	—	1.270
θ	0°	—	8°

Unit:mm

Package Information:

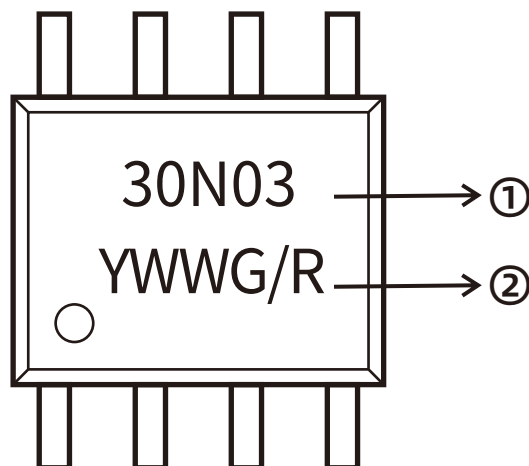
①. Part NO.

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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