

Description:

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

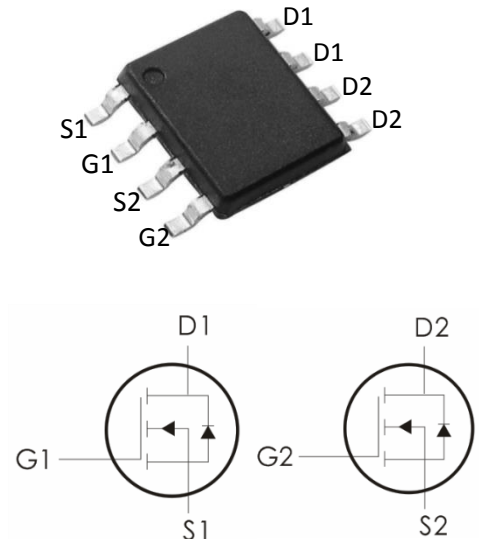
It can be used in a wide variety of applications.

Features:

- 1) $V_{DS}=30V, I_D=7A, R_{DS(ON)} < 25m\Omega @ V_{GS}=10V$
- 2) Low gate charge.
- 3) Green device available.
- 4) Advanced high cell density trench technology for ultra $R_{DS(ON)}$.
- 5) Excellent package for good heat dissipation.

Package Marking and Ordering Information:

Part NO.	Marking	Package	Packing
DOS7DN03	7DN03	SOP-8D	3000 pcs/Reel



Absolute Maximum Ratings: ($T_A=25^\circ C$ 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	7	A
	Continuous Drain Current- $T_A=100^\circ C$	4.95	
	Pulsed Drain Current	40	
P_D	Power Dissipation ⁴	2	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	$^\circ C$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient ²	85	$^\circ C/W$

Electrical Characteristics: ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV _{DSS}	Drain-Sourctce 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 ³						
V _{GS(th)}	GATE-Source Threshold Voltage	V _{GS} =V _{DS} , I _D =250 μ A	1.1	1.7	2.1	V
R _{DS(ON)}	Drain-Source On Resistance	V _{GS} =10V, I _D =7A	---	17	25	m Ω
		V _{GS} =4.5V, I _D =6A	---	26	40	
G _{FS}	Forward Transconductance	V _{DS} =5V, I _D =7A	---	15	---	S
Dynamic Characteristics ⁴						
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz	---	380	---	pF
C _{oss}	Output Capacitance		---	67	---	
C _{rss}	Reverse Transfer Capacitance		---	41	---	
Switching Characteristics ⁴						
t _{d(on)}	Turn-On Delay Time	V _{DD} =15V, R _L =2 Ω R _{GEN} =3 Ω . V _{GS} =10V,	---	5	---	ns
t _r	Rise Time		---	3	---	ns
t _{d(off)}	Turn-Off Delay Time		---	15	---	ns
t _f	Fall Time		---	3	---	ns
Q _g	Total Gate Charge	V _{GS} =4.5V, V _{DS} =15V, I _D =7A	---	7.2	---	nC
Q _{gs}	Gate-Source Charge		---	1.3	---	nC
Q _{gd}	Gate-Drain “Miller” Charge		---	1.7	---	nC
Drain-Source Diode Characteristics						
V _{SD}	Source-Drain Diode Forward Voltage ³	V _{GS} =0V, I _S =7A	---	---	1.2	V
I _S	Maximum Body-Diode Continuous Current ²	VD=VG=0V	---	---	7	A

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^{\circ}\text{C}$. The value in any given application depends on the user's specific board design. Surface Mounted on FR4 Board, $t \leq 10\text{ sec}$. The current rating is based on the $t \leq 10s$ thermal resistance rating.
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production.

Typical Characteristics: ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

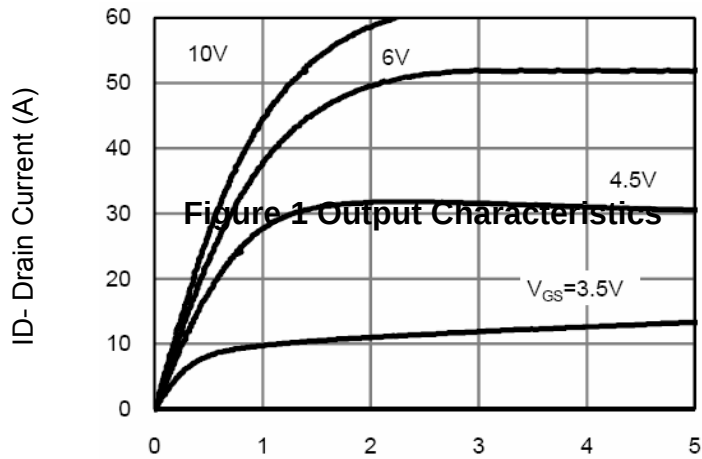


Figure 1 Output Characteristics

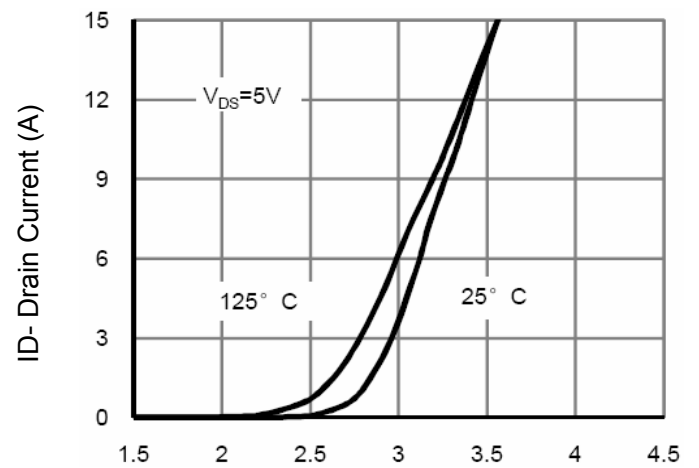


Figure 2 Transfer Characteristics

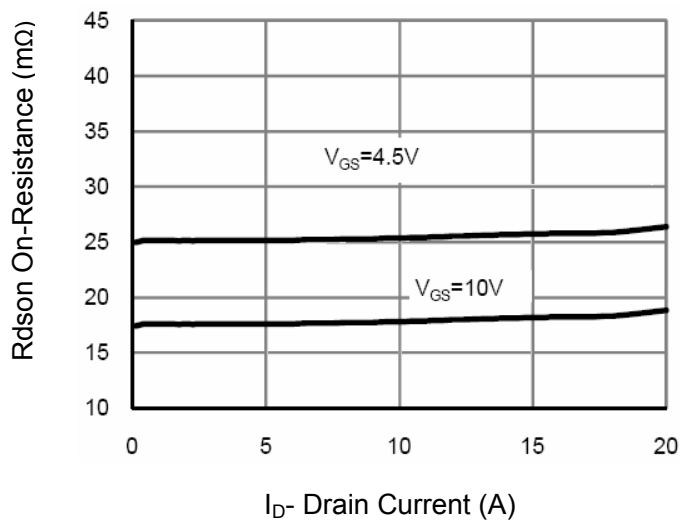


Figure 3 Rdson- Drain Current

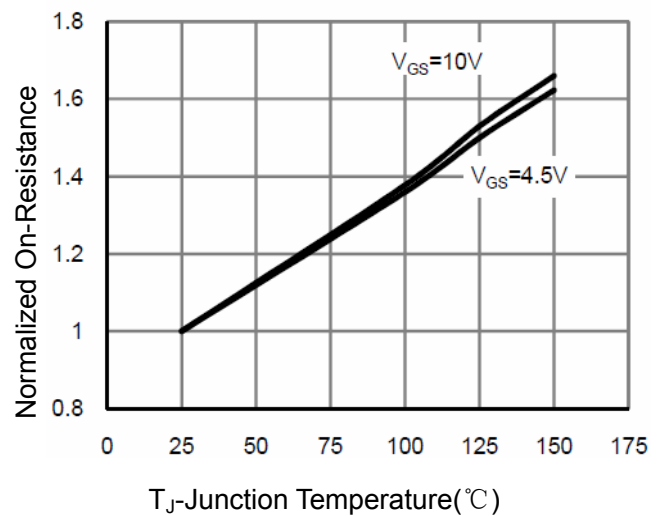


Figure 4 Rdson-Junction Temperature

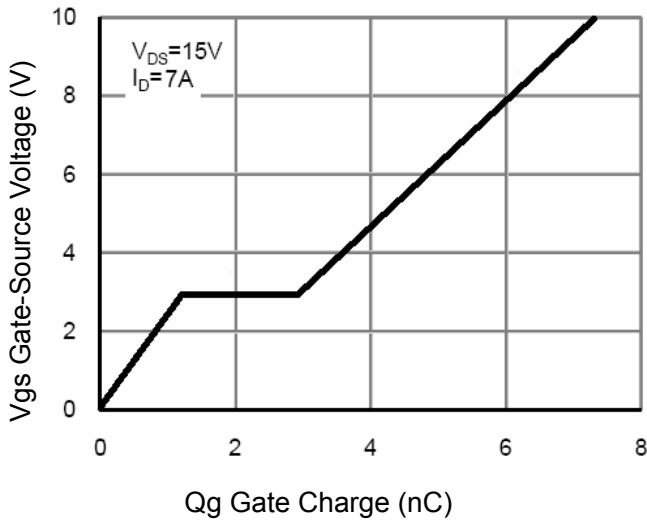


Figure 5 Gate Charge

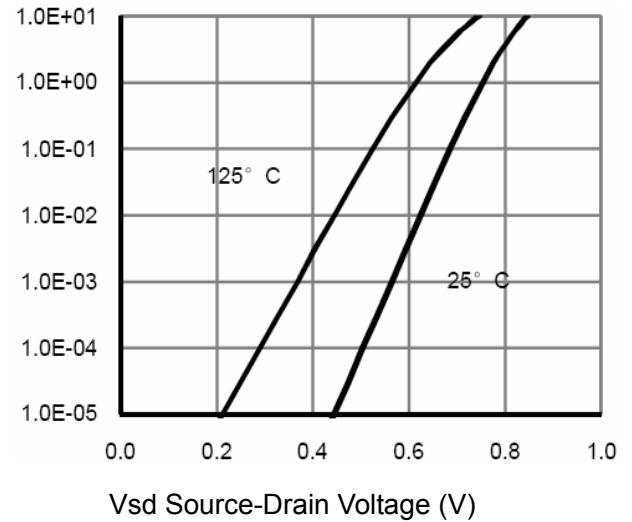


Figure 6 Source- Drain Diode Forward

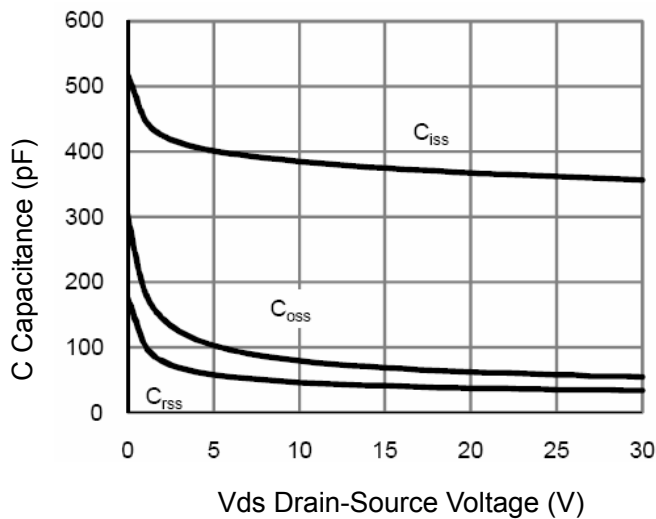


Figure 7 Capacitance vs Vds

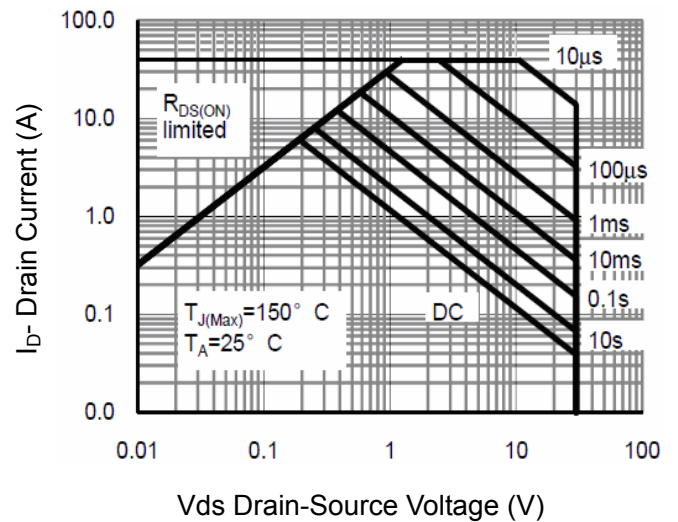


Figure 8 Safe Operation Area

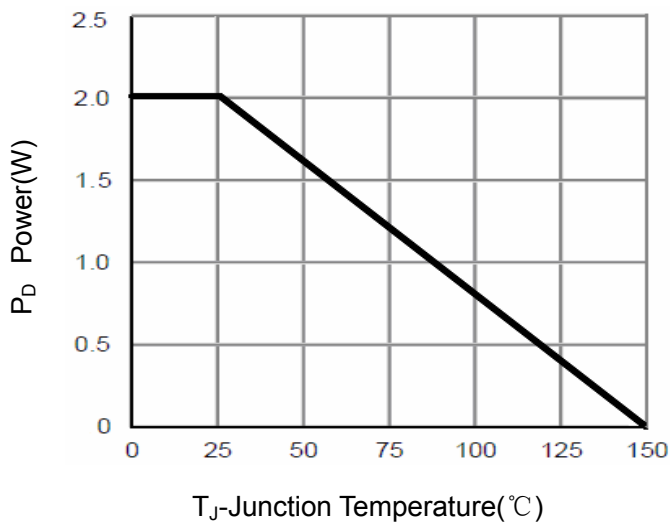


Figure 9 Power Dissipation

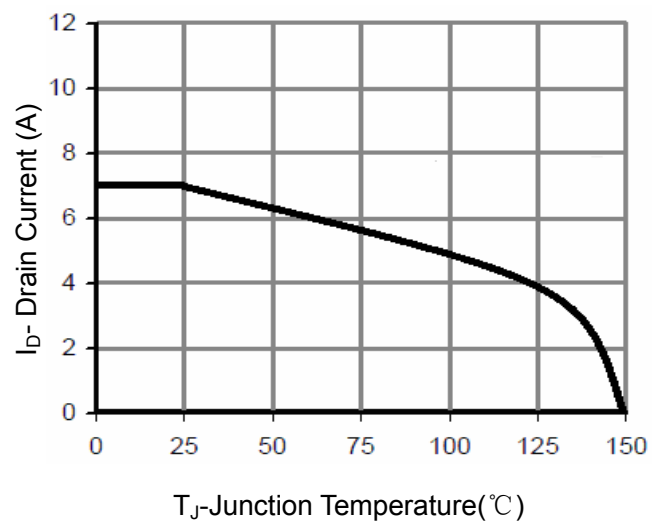


Figure 10 Current De-rating

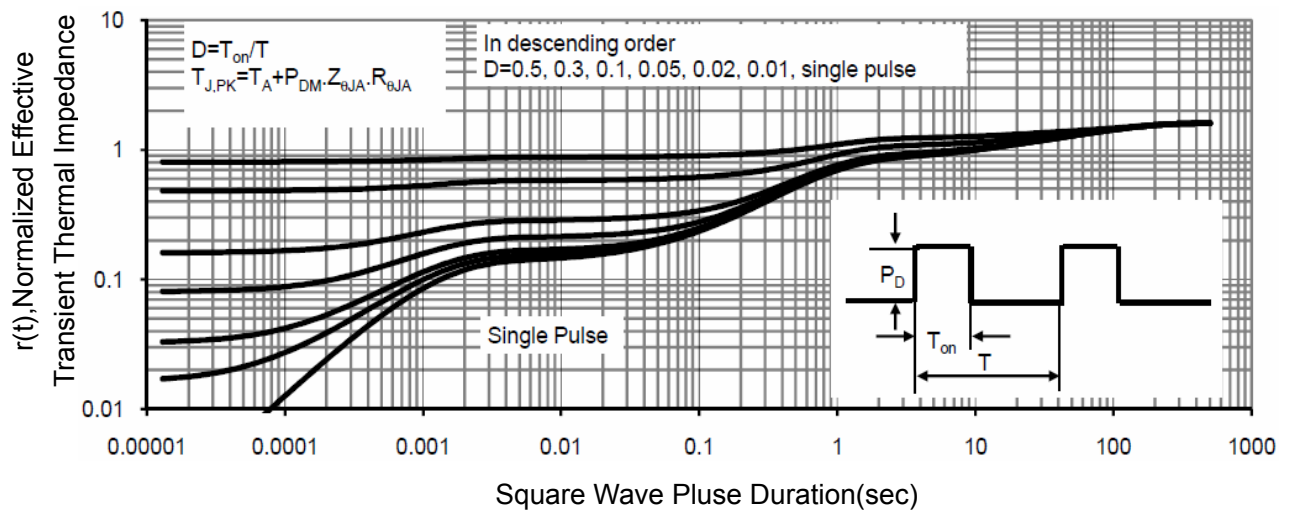
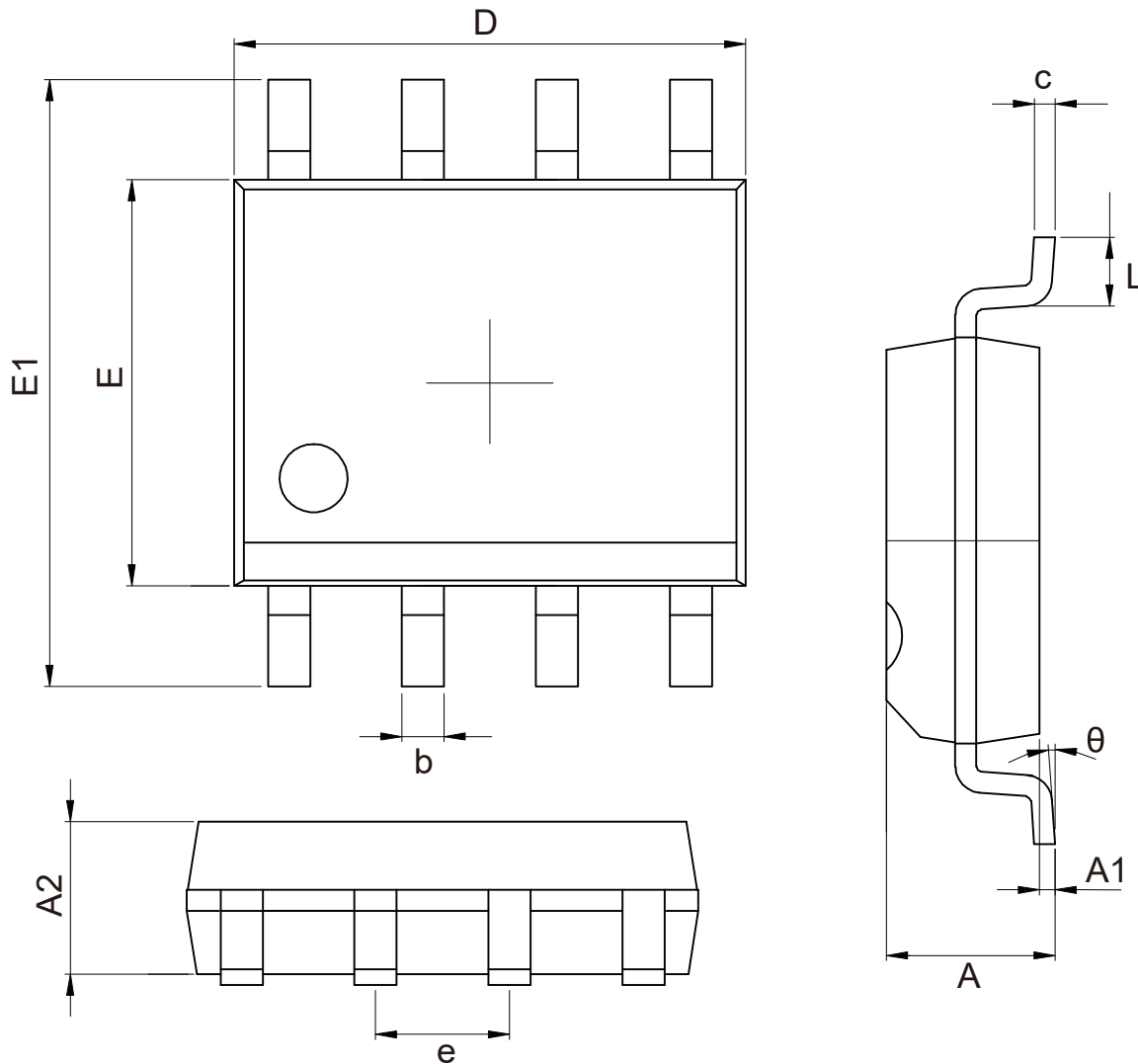


Figure 11 Normalized Maximum Transient Thermal Impedance

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

Marking Information:

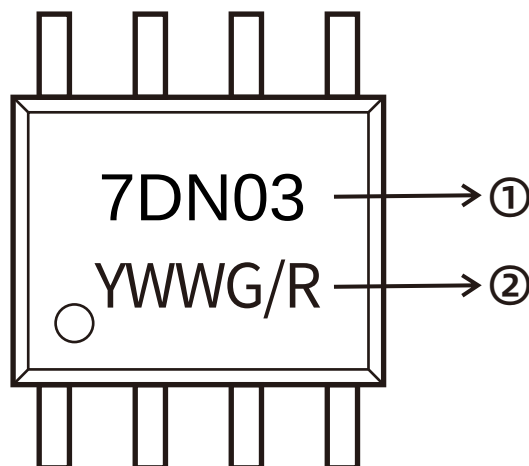
①. Part NO.

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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