

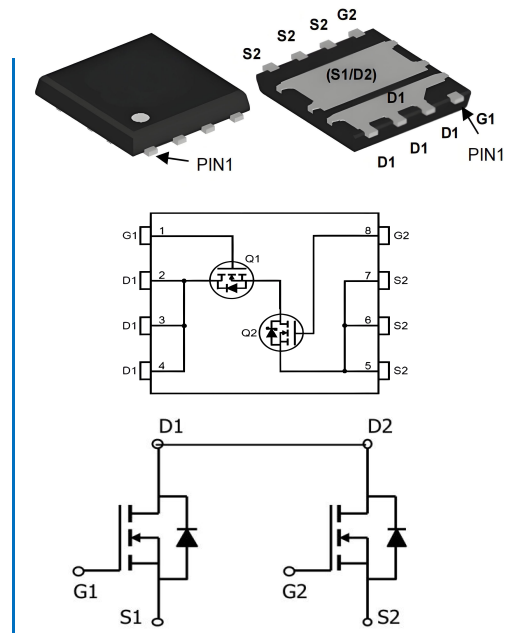
Description:

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) $V_{DS}=30V, I_D=45A, R_{DS(ON)} < 8m\Omega @ V_{GS}=10V$ (Typ: $6.2m\Omega$)
- 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.
- 6) MSL3



Package Marking and Ordering Information:

Part NO.	Marking	Package	Packing
DOM45DN03	45DN03	DFN5*6-8Asym Dual	5000 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 ¹	45	A
	Continuous Drain Current- $T_C=100^\circ C$ ¹	31.5	
I_{DM}	Pulsed Drain Current ²	180	
P_D	Power Dissipation	15	W
E_{AS}	Single pulse avalanche energy ³	23.5	mJ
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55-+150	$^\circ C$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case	8.3	$^\circ C/W$

Electrical Characteristics: ($T_C=25^{\circ}\text{C}$ 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 (Note3)						
V _{GS(th)}	Gate-Source Threshold Voltage	V _{GS} =V _{DS} , I _D =250 μ A	1	---	2.5	V
R _{DS(on)}	Drain-Source On Resistance ⁴	V _{GS} =10V, I _D =20A	---	6.2	8	m Ω
		V _{GS} =4.5V, I _D =10A	---	8.5	11	
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz	---	1120	---	pF
C _{oss}	Output Capacitance		---	286	--	
C _{rss}	Reverse Transfer Capacitance		---	151	---	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DS} =15V, I _D =15A, R _G =3 Ω ,V _{GS} =10V	---	14	---	ns
t _r	Rise Time		---	18	---	ns
t _{d(off)}	Turn-Off Delay Time		---	34	---	ns
t _f	Fall Time		---	20	---	ns
Q _g	Total Gate Charge	V _{GS} =10V, V _{DS} =15V, I _D =15A	---	13.3	---	nC
Q _{gs}	Gate-Source Charge		---	2.35	---	nC
Q _{gd}	Gate-Drain “Miller” Charge		---	5.9	---	nC
Drain-Source Diode Characteristics						
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _{SD} =30A	---	---	1.2	V
I _S	Continuous Drain Current	V _D =V _G =0V	---	---	45	A
I _{SM}	Pulsed Drain Current		---	---	180	A
T _{rr}	Reverse Recovery Time	I _F =30A, T _J =25 °C	---	4.1	---	ns
Q _{rr}	Reverse Recovery Charge	dI/dt=100A/us	---	14	---	nC

Notes:

1. Computed continuous current assumes the condition of $T_{j,Max}$ while the actual continuous current depends on the thermal & electro-mechanical application board design
2. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
3. EAS condition : $T_J=25^{\circ}C, V_{DD}=15V, V_G=10V, L=0.1mH$
4. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 0.5\%$

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

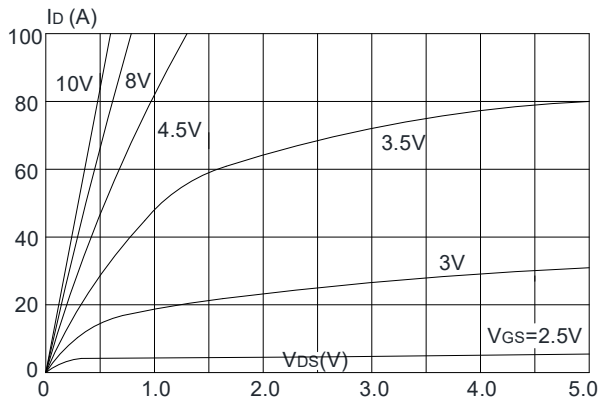


Figure 1: Output Characteristics

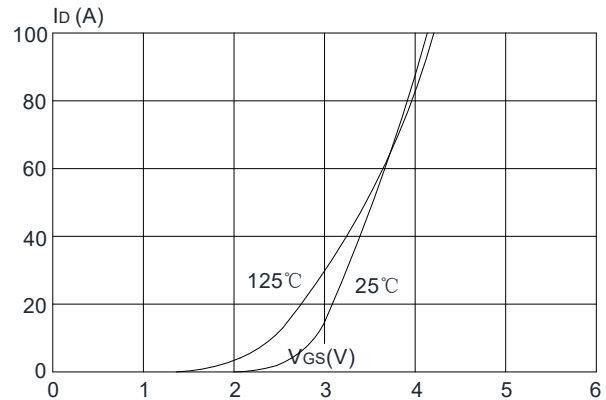


Figure 2: Typical Transfer Characteristics

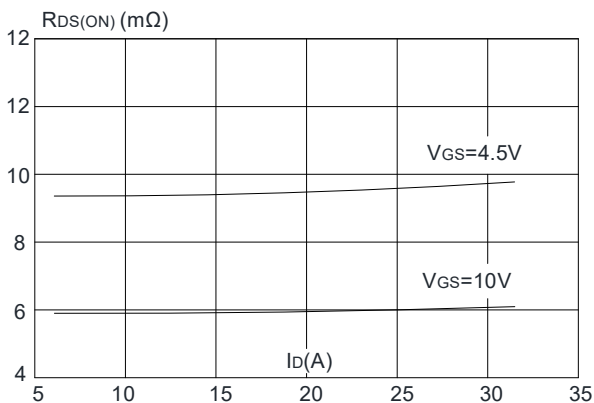


Figure 3: On-resistance vs. Drain Current

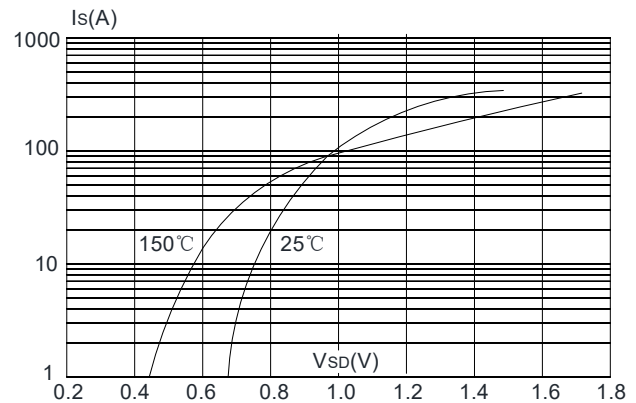


Figure 4: Body Diode Characteristics

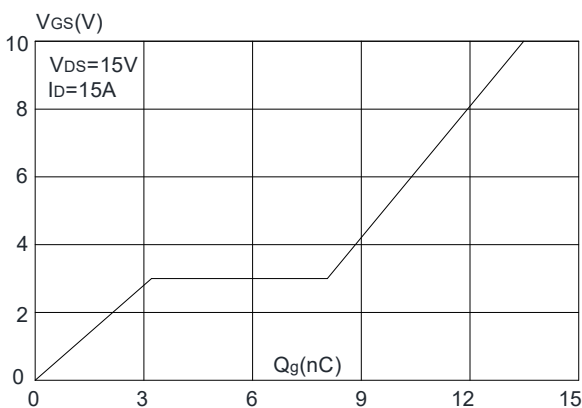


Figure 5: Gate Charge Characteristics

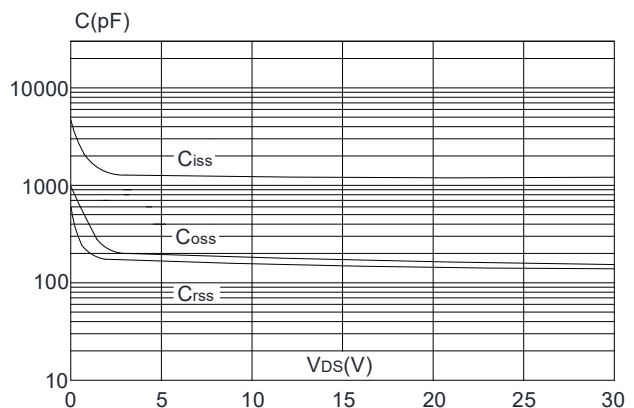


Figure 6: Capacitance Characteristics

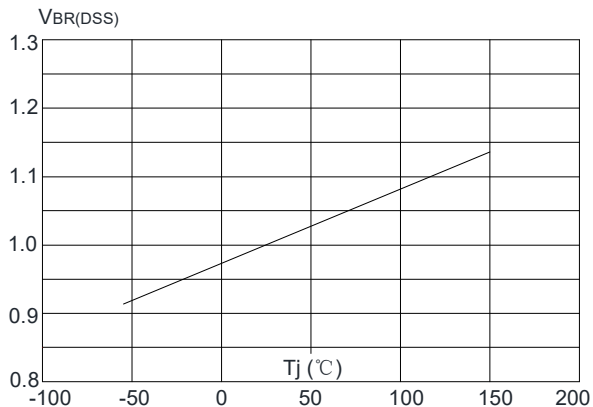


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

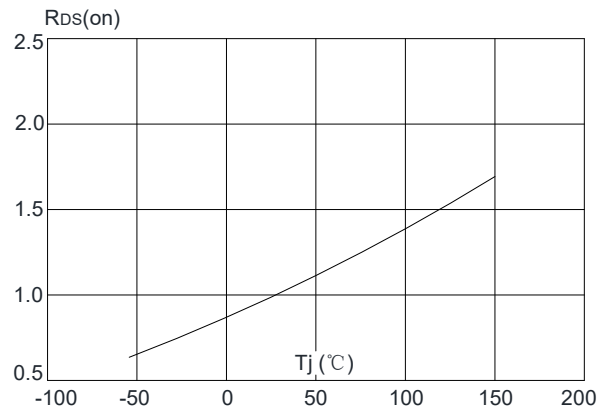


Figure 8: Normalized on Resistance vs. Junction Temperature

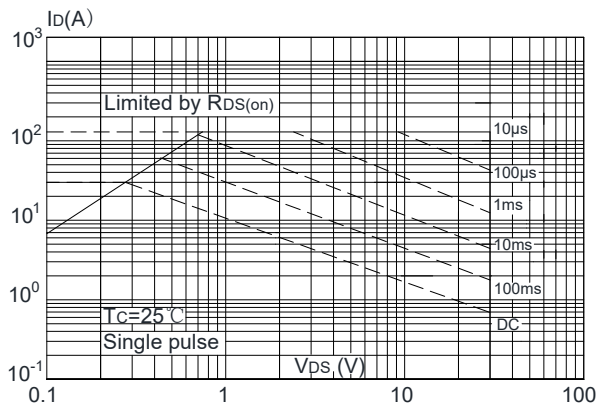


Figure 9: Maximum Safe Operating Area

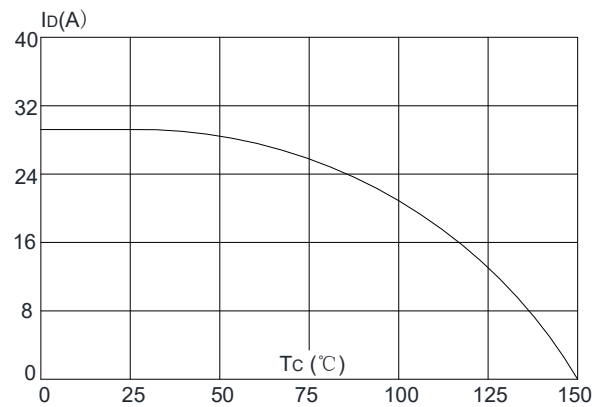


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

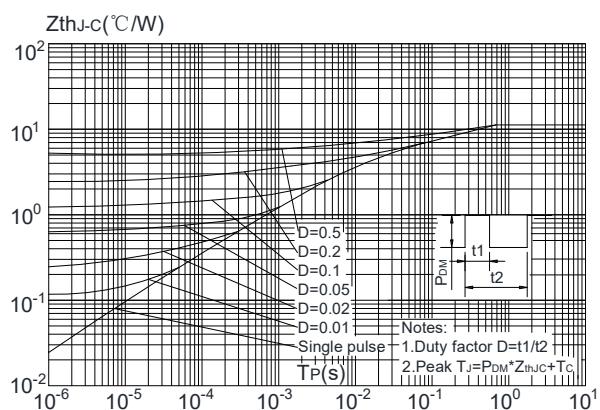
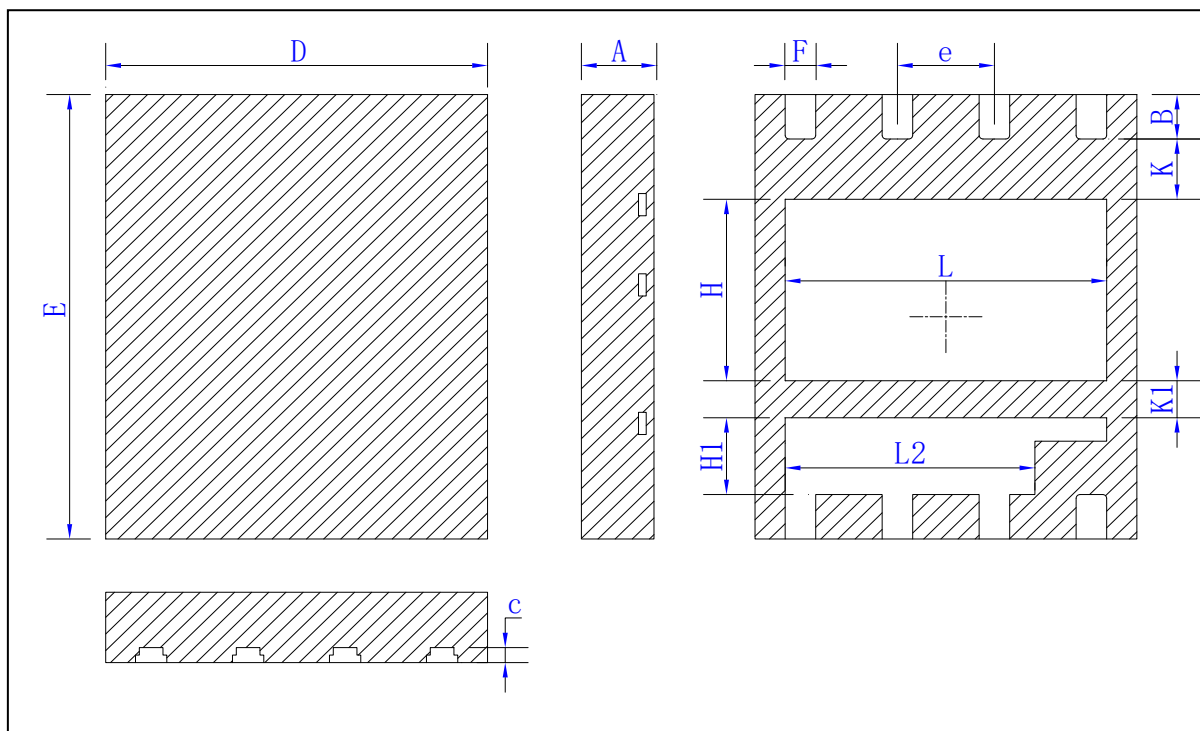


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case

TDFN5×6 Asym Package Information:



UNIT: mm

Symbol	Min	Typ	Max
A	0.90	0.95	1.00
B	0.50	0.60	0.70
C	0.153	0.203	0.253
D	4.90	5.00	5.10
E	5.90	6.00	6.10
e	1.22	1.27	1.32
F	0.35	0.40	0.45
H	2.35	2.45	2.55
H1	0.93	1.03	1.13
L	4.06	4.21	4.36
L2	3.07	3.22	3.37
K	7	0.80	0.90
K1	0.40	0.50	0.60

Marking Information:

①. Doingter LOGO

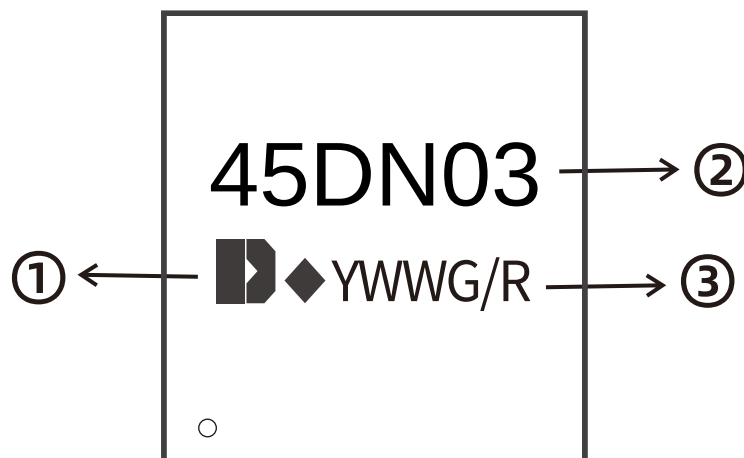
②. Part NO.

③. Date Code(YWWG / R)

Y : Year Code , last digit of the year

WW : Week Code(01-53)

G/R : G(Green) /R(Lead Free)



Previous Version

Version	Date	Subjects (major changes since last revision)
1.0	2025-06-12	Release of final version

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