

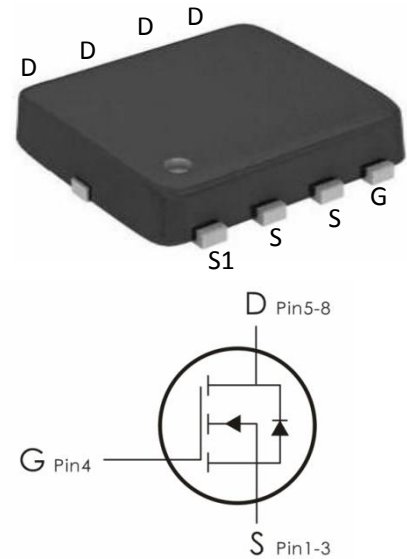
Description:

This N-Channel MOSFET uses advanced SGT 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) $V_{DS}=100V, I_D=30A, R_{DS(on)} < 16.5m\Omega @ V_{GS}=10V$ (Typ : $15m\Omega$)
- 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.



Package Marking and Ordering Information:

Part NO.	Marking	Package	Packing
DOZ30N10	30N10	DFN3*3-8	5000 pcs/Reel

Absolute Maximum Ratings: ($T_c=25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current ¹	30	A
I_{DM}	Pulsed Drain Current ²	150	
P_D	Power Dissipation	65	W
E_{AS}	Single pulse avalanche energy ⁵	14	mJ
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55-+150	$^\circ\text{C}$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JC}$	Thermal Resistance, Junction to Case	1.12	$^\circ\text{C}/\text{W}$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient ⁴	62	$^\circ\text{C}/\text{W}$

Electrical Characteristics: ($T_c=25^{\circ}\text{C}$ 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	100	---	---	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{GS} =0V, V _{DS} =100V	---	---	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	---	2.5	V
R _{DS(ON)}	Drain-Source On Resistance	V _{GS} =10V, I _D =10A	---	15	16.5	m Ω
		V _{GS} =4.5V, I _D =7A	---	22	26	
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1MHz	---	918	---	pF
C _{oss}	Output Capacitance		---	517	--	
C _{rss}	Reverse Transfer Capacitance		---	29	---	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DS} =50V, I _D =25A, R _G =2 Ω ,V _{GS} =10V	---	7	---	ns
t _r	Rise Time		---	3	---	ns
t _{d(off)}	Turn-Off Delay Time		---	15	---	ns
t _f	Fall Time		---	2.2	---	ns
Q _g	Total Gate Charge	V _{GS} =10V, V _{DS} =50V, I _D =25A	---	13	---	nc
Q _{gs}	Gate-Source Charge		---	2	---	nc
Q _{gd}	Gate-Drain “Miller” Charge		---	2.6	---	nc
Drain-Source Diode Characteristics						
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _{SD} =10A	---	---	1.3	V
I _S	Continuous Drain Curren	VD=VG=0V	---	---	30	A
I _{SM}	Pulsed Drain Current		---	---	150	A
Trr	Reverse Recovery Time	I _F =25A, T _J =25 °C	---	54	---	ns
Qrr	Reverse Recovery Charge	dI/dt=100A/us	---	51	---	nc

Notes:

1. Calculated continuous current based on maximum allowable junction temperature.
2. Repetitive rating; pulse width limited by max. junction temperature.
3. Pd is based on max. junction temperature, using junction-case thermal resistance.
4. The value of $R_{\theta JA}$ is measured with the device mounted on 1 in² FR-4 board with 2oz. Copper, in a still air environment with $T_a=25\text{ }^{\circ}\text{C}$.
5. $V_{DD}=50\text{ V}$, $V_{GS}=10\text{ V}$, $L=0.3\text{ mH}$, starting $T_j=25\text{ }^{\circ}\text{C}$.

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

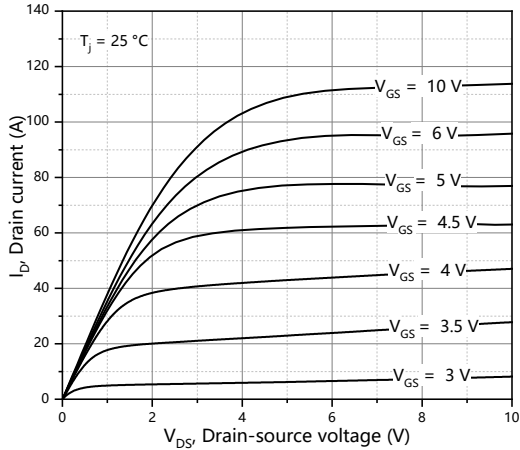


Figure 1. Typ. output characteristics

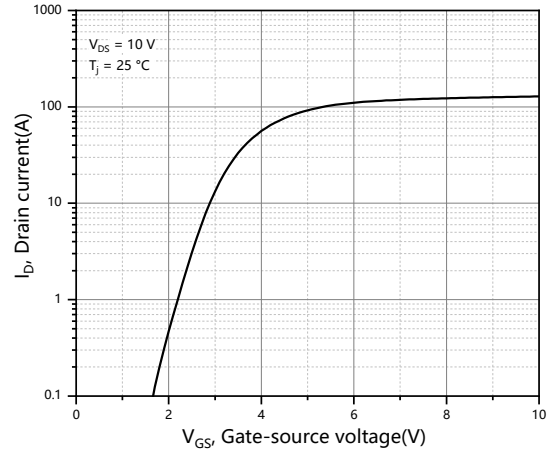


Figure 2. Typ. transfer characteristics

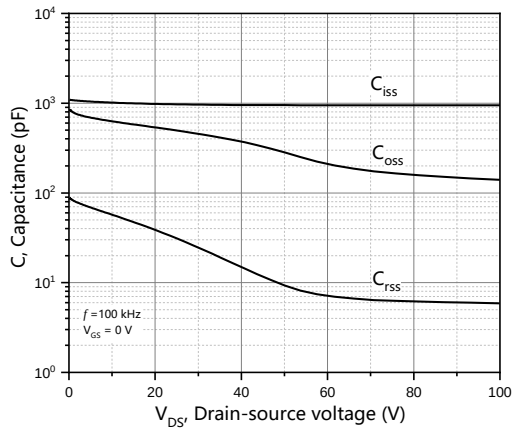


Figure 3. Typ. capacitances

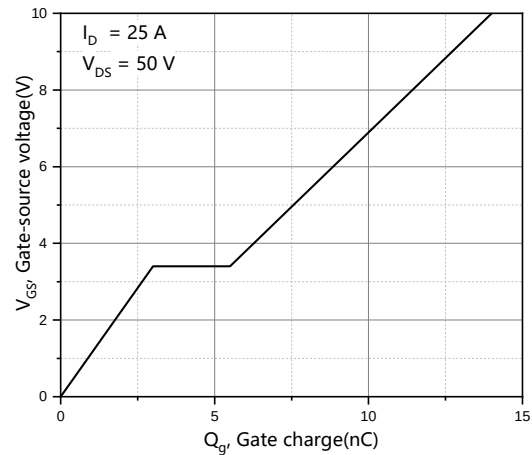


Figure 4. Typ. gate charge

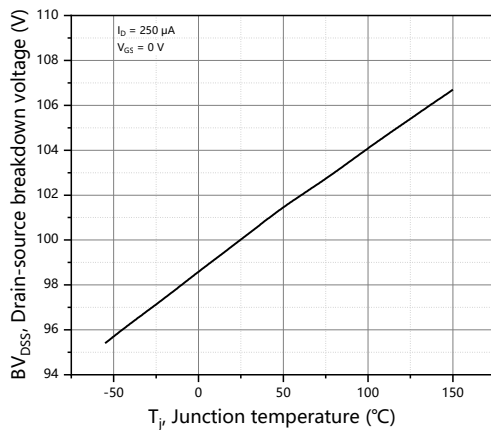


Figure 5. Drain-source breakdown voltage

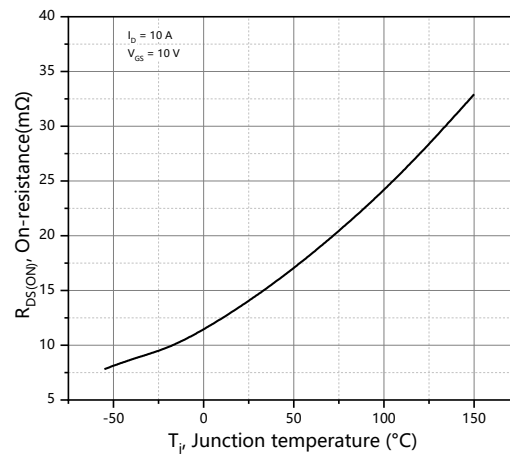


Figure 6. Drain-source on-state resistance

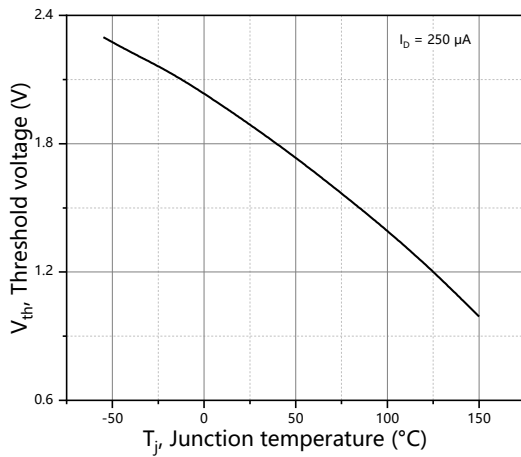


Figure 7. Threshold voltage

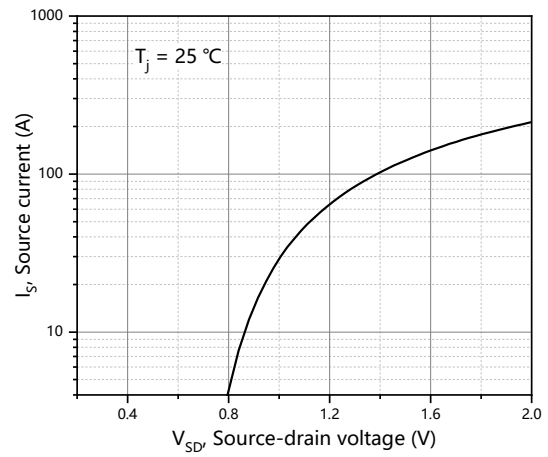


Figure 8. Forward characteristic of body diode

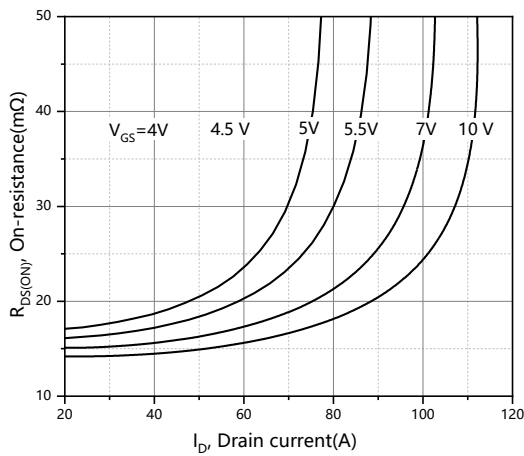


Figure 9. Drain-source on-state resistance

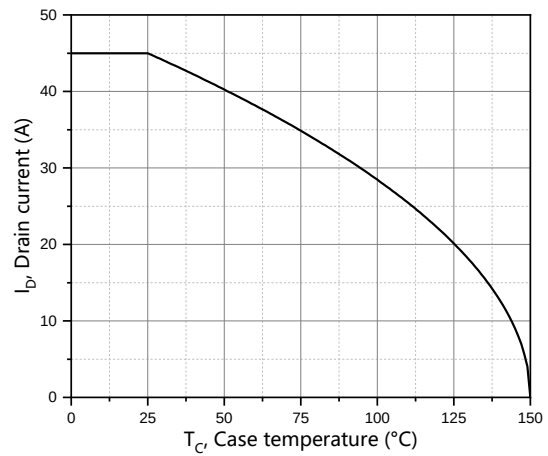


Figure 10. Drain current

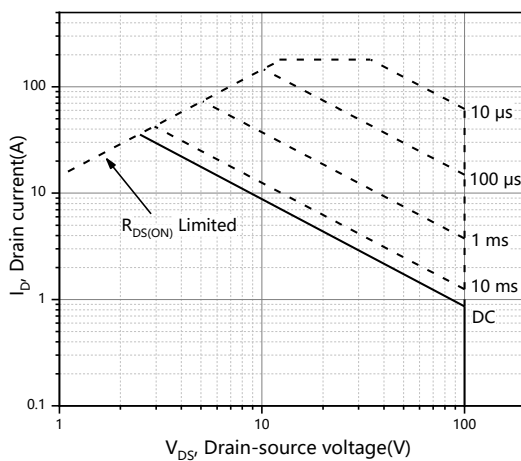


Figure 11. Safe operation area $T_C=25\text{ }^{\circ}\text{C}$

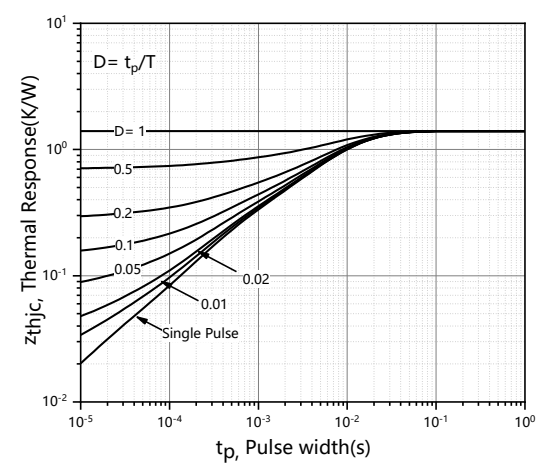
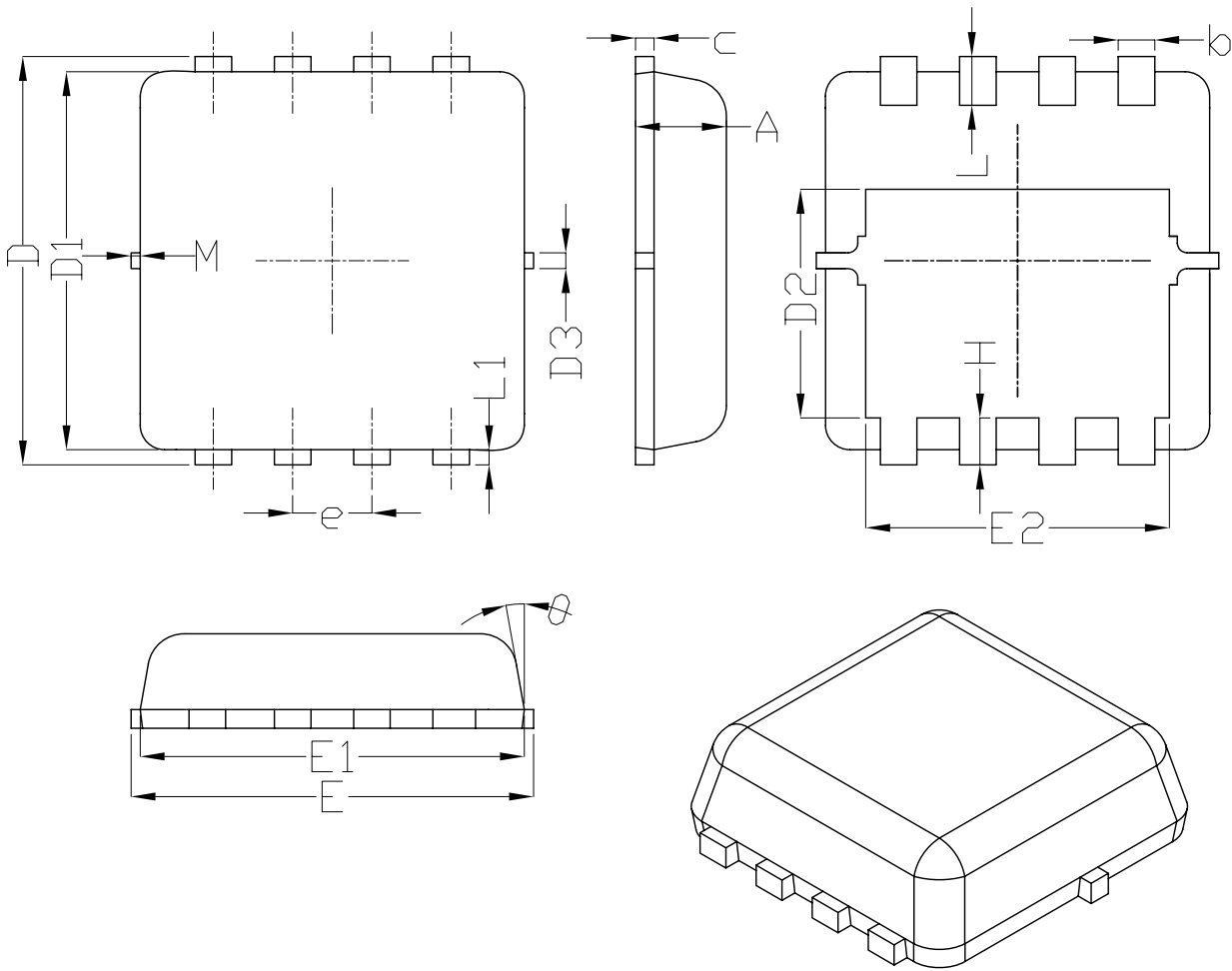


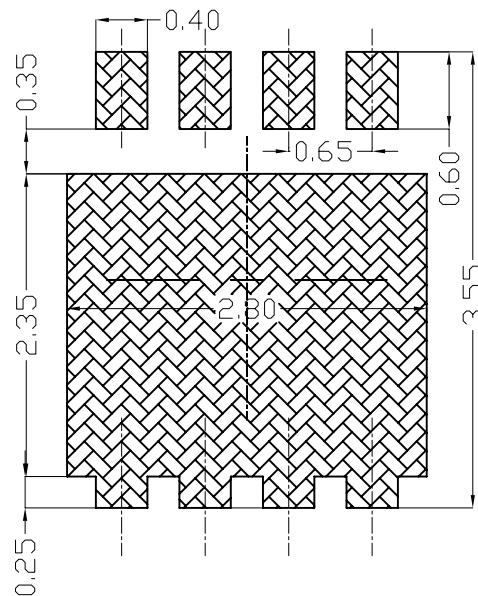
Figure 12. Max. transient thermal impedance

DFN3X3-8 Package Information:



SYMBOL	DIMENSIONAL REOMTS		
	MIN	NOM	MAX
A	0.70	0.75	0.80
b	0.25	0.30	0.35
c	0.10	0.15	0.25
D	3.25	3.35	3.45
D1	3.00	3.10	3.20
D2	1.78	1.88	1.98
D3	---	0.13	---
E	3.20	3.30	3.40
E1	3.00	3.15	3.20
E2	2.39	2.49	2.59
e	0.65BSC		
H	0.30	0.39	0.50
L	0.30	0.40	0.50
L1	---	0.13	---
θ	---	10°	12°
M	*	*	0.15

* Not specified



UNIT: mm

Marking Information:

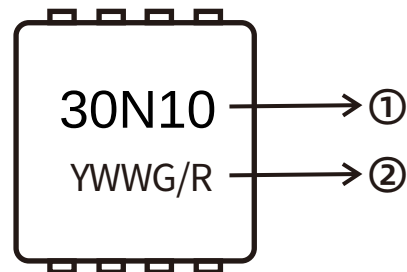
①. Part NO.

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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