

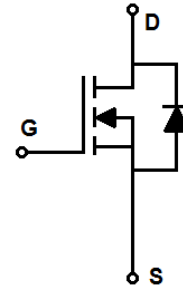
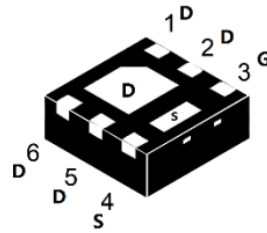
Description:

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) $V_{DS}=30V, I_D=6A, R_{DS(ON)} < 20m\Omega @ V_{GS}=10V$ (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.
- 6) MSL3



Package Marking and Ordering Information:

Part NO.	Marking	Package	Packing
R3400B	3400B	DFN2*2-6	3000pcs Reel

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

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	± 12	V
I_D	Continuous Drain Current ¹	6	A
	Continuous Drain Current- $T_A=100^\circ\text{C}$ ¹	4.2	
	Pulsed Drain Current ²	24	
I_{DM}	Pulsed Drain Current ²	24	
P_D	Power Dissipation	1.5	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55-+150	$^\circ\text{C}$

Thermal Characteristics:

Symbol	Parameter	Max	Units
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	83.3	$^\circ\text{C}/\text{W}$

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} =± 12V, V _{DS} =0A	---	---	± 100	nA
On Characteristics						
V _{GS(th)}	Gate-Source Threshold Voltage	V _{GS} =V _{DS} , I _D =250 μ A	0.6	0.9	1.5	V
R _{DS(ON)}	Drain-Source On Resistance ³	V _{GS} =10V,I _D =3A	---	15	20	m Ω
		V _{GS} =4.5V,I _D =1A	---	16.5	22	m Ω
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz	---	820	---	pF
C _{oss}	Output Capacitance		---	65	--	
C _{rss}	Reverse Transfer Capacitance		---	51	---	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DS} =15V, I _D =4A, R _{ENG} =3 Ω ,V _{GS} =4.5V	---	9	---	ns
t _r	Rise Time		---	26	---	ns
t _{d(off)}	Turn-Off Delay Time		---	25	---	ns
t _f	Fall Time		---	32	---	ns
Q _g	Total Gate Charge	V _{GS} =4.5V, V _{DS} =15V, I _D =4A	---	9.5	---	nC
Q _{gs}	Gate-Source Charge		---	1	---	nC
Q _{gd}	Gate-Drain “Miller” Charge		---	1	---	nC
Drain-Source Diode Characteristics						
V _{SD}	Diode Forward Voltage ³	V _{GS} =0V, I _{SD} =5.8A	---	---	1.2	V
I _S	Continuous Drain Curren	VD=VG=0V	---	---	6	A
I _{SM}	Pulsed Drain Current		---	---	24	A

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. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 0.5\%$

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

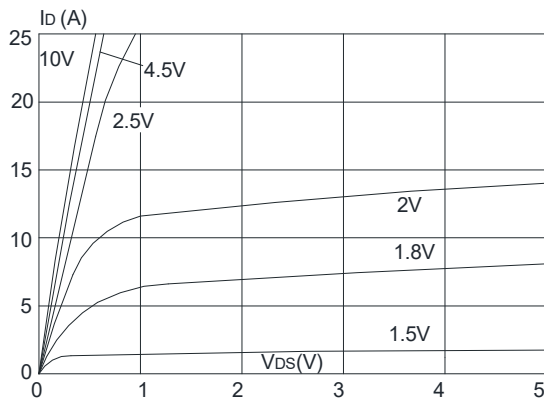


Figure 1: Output Characteristics

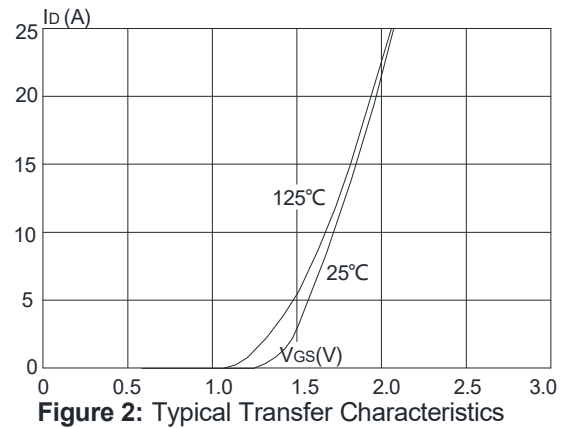


Figure 2: Typical Transfer Characteristics

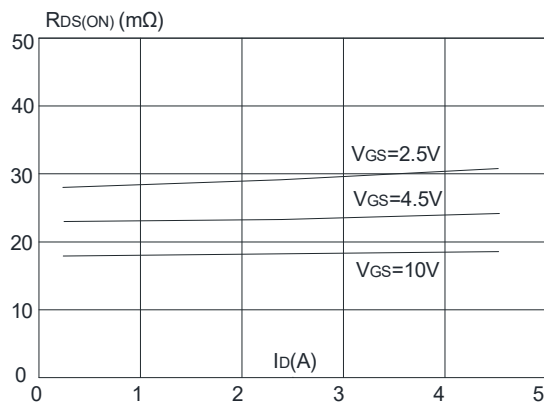


Figure 3: On-resistance vs. Drain Current

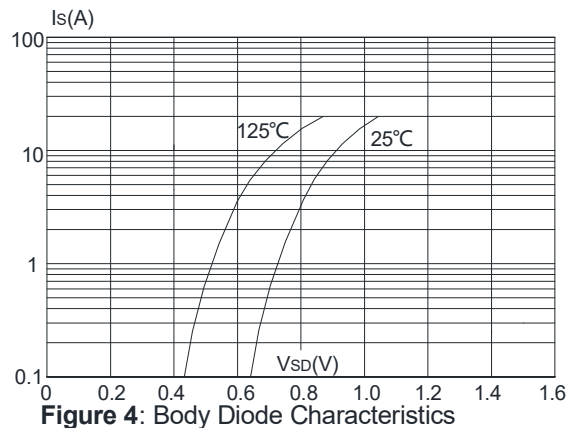


Figure 4: Body Diode Characteristics

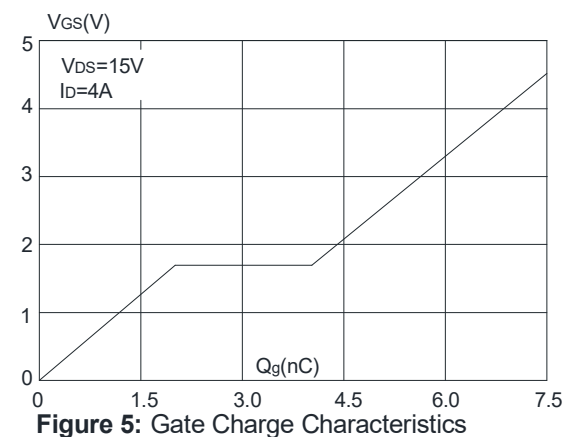


Figure 5: Gate Charge Characteristics

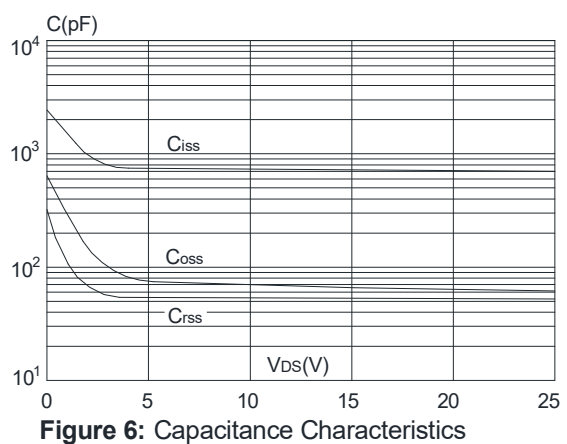


Figure 6: Capacitance Characteristics

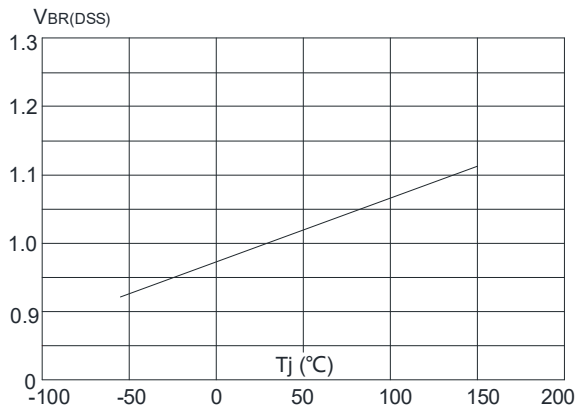


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

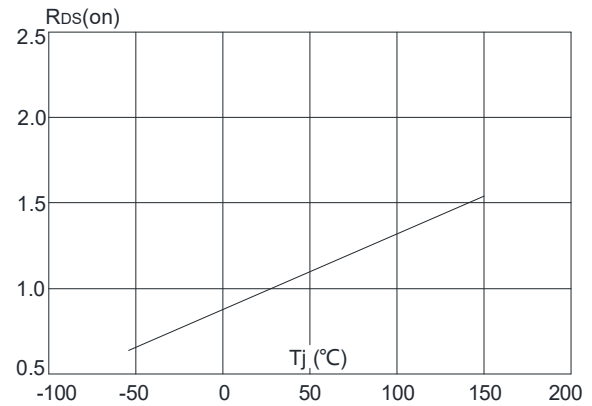


Figure 8: Normalized on Resistance vs. Junction Temperature

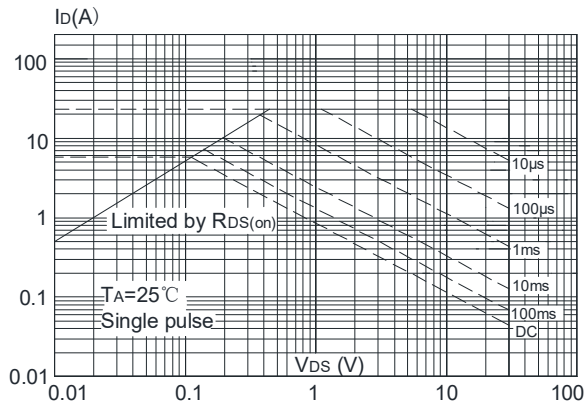


Figure 9: Maximum Safe Operating Area

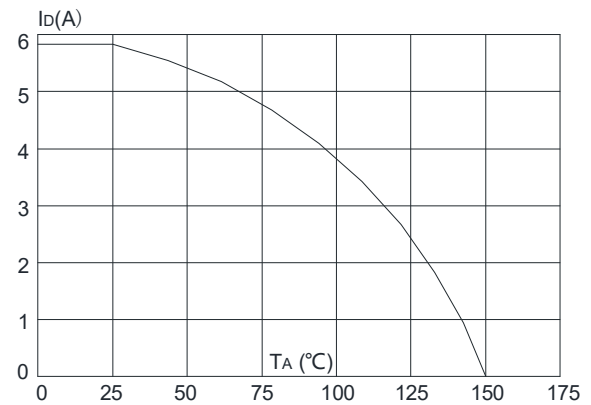


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

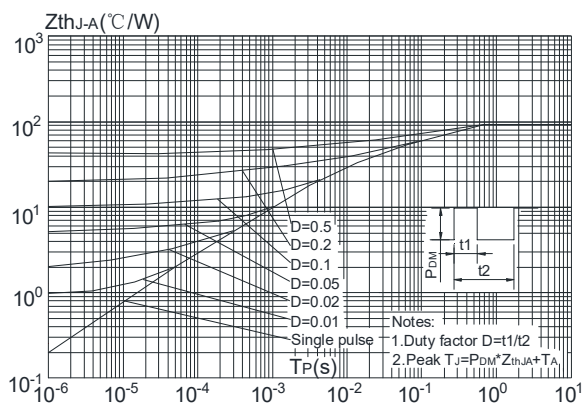
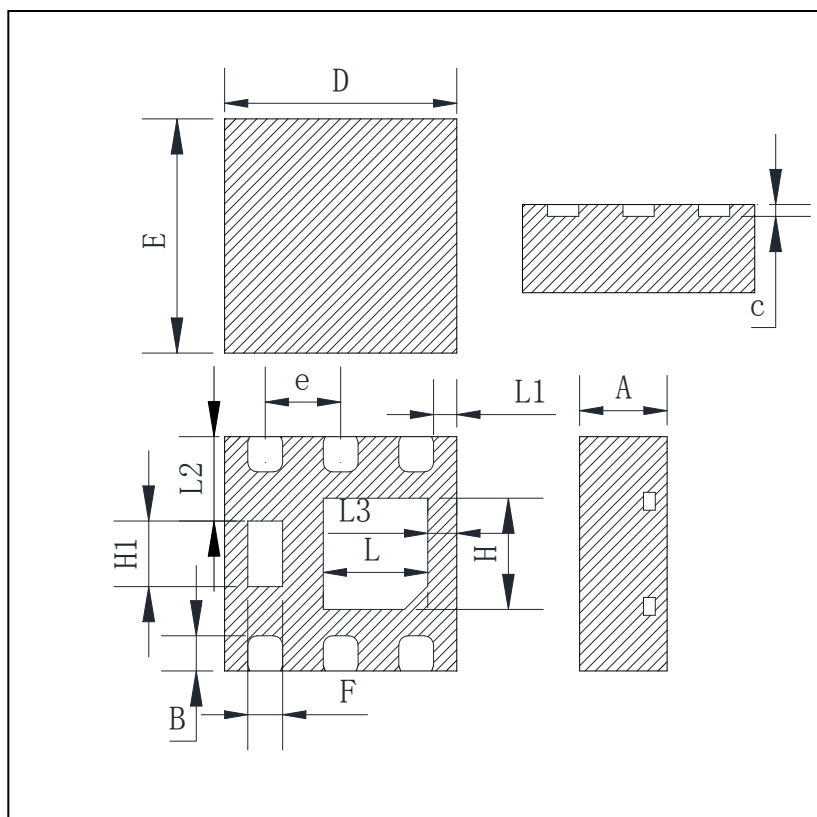


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

DFN2X2-6 Package Outline Data


Symbol	Min	Typ	Max
A	0.70	0.75	0.80
B	0.25	0.30	0.35
C	0.153	0.203	0.253
D	1.90	2.00	2.10
E	1.90	2.00	2.10
e	0.60	0.65	0.70
F	0.25	0.30	0.35
H	0.90	1.00	1.10
H1	0.50	0.60	0.65
L	0.80	0.90	1.00
L1	0.15	0.20	0.25
L2	0.60	0.70	0.80
L3	0.25	0.30	0.35

UNIT: mm

Marking Information:

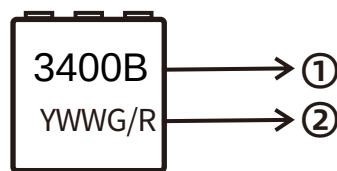
①: Part NO.

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)



Previous Version

Version	Date	Subjects (major changes since last revision)
1.0	2024-09-08	Release of final version

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