

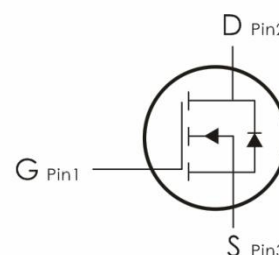
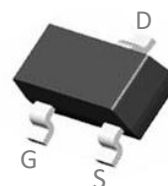
Description:

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) $V_{DS}=30V, I_D=5.8A, R_{DS(on)} < 26m\Omega @ V_{GS}=10V$
- 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
DO3400B	3400B	SOT-23	3000pcs/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	± 12	V
I_D	Continuous Drain Current- $T_A=25^\circ C$	5.8	A
	Continuous Drain Current- $T_A=100^\circ C$	3.8	
I_{DM}	Pulse Drain Current Tested ^{note1}	23.2	A
P_D	Power Dissipation- $T_A=25^\circ C$	1.36	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	92	$^\circ C/W$

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

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV _{DSS}	Drain-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	0.5	0.9	1.4	V
R _{DS(ON)}	Drain-Source On-Resistance ^{note2}	V _{GS} =10V, I _D =4.2A	---	21	26	m Ω
		V _{GS} =4.5V, I _D =4A	---	23	30	
		V _{GS} =2.5V, I _D =1A	---	32	45	
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} =15V, V _{GS} =0V, f=1MHz	---	700	---	pF
C _{oss}	Output Capacitance		---	60	---	
C _{rss}	Reverse Transfer Capacitance		---	50	---	
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DS} =15V, V _{GS} =4.5V, I _D =4A, R _{GEN} =3 Ω	---	12	---	ns
t _r	Rise Time		---	52	---	ns
t _{d(off)}	Turn-Off Delay Time		---	17	---	ns
t _f	Fall Time		---	10	---	ns
Q _g	Total Gate Charge	V _{GS} =4.5V, V _{DS} =15V, I _D =4A	---	4.8	---	nC
Q _{gs}	Gate-Source Charge		---	1.2	---	nC
Q _{gd}	Gate-Drain “Miller” Charge		---	1.7	---	nC
Drain-Source Diode Characteristics						
I _S	Continuous Source Current	V _D =V _G =0V	---	---	5.8	A
I _{SM}	Pulsed Source Current		---	---	23.2	A
V _{SD}	Forward Voltage	V _{GS} =0V , I _S =5.8A	---	---	1.2	V

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 0.5\%$

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

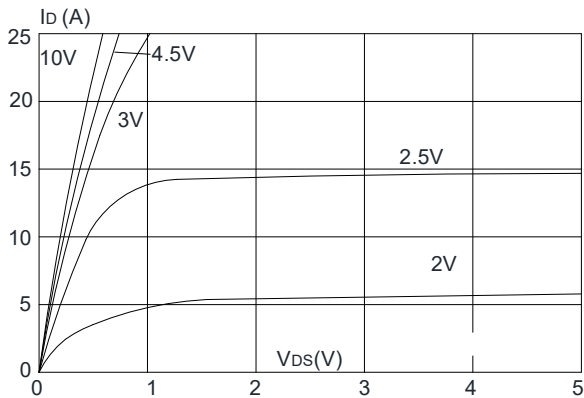


Figure1: Output Characteristics

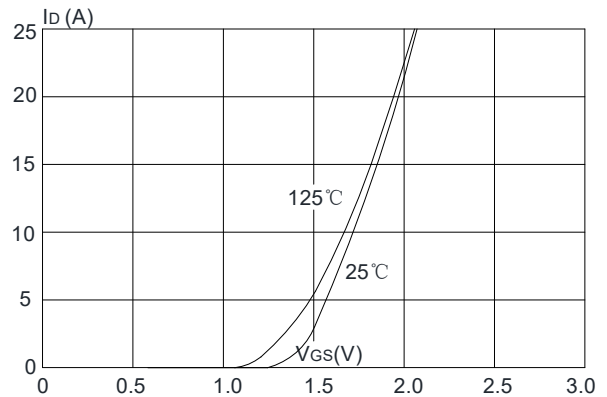


Figure 2: Typical Transfer Characteristics

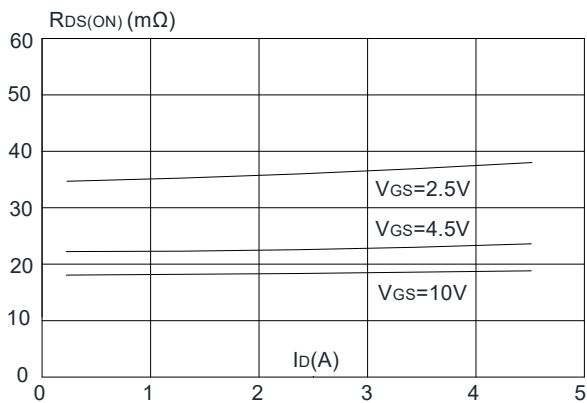


Figure 3: On-resistance vs. Drain Current

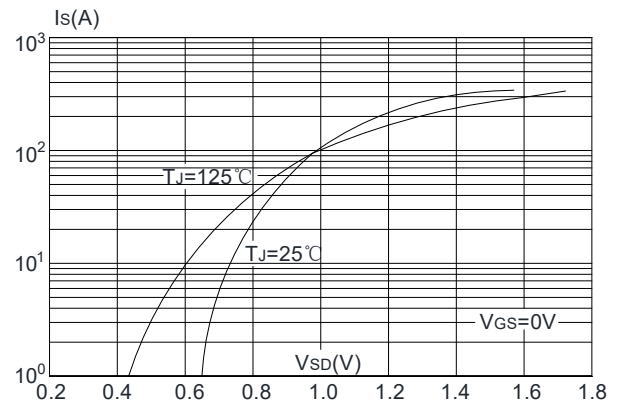


Figure 4: Body Diode Characteristics

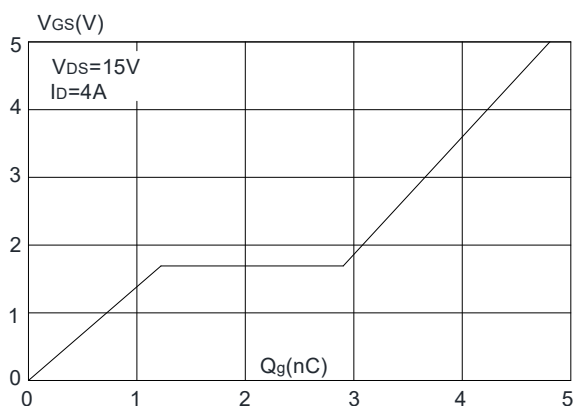


Figure 5: Gate Charge Characteristics

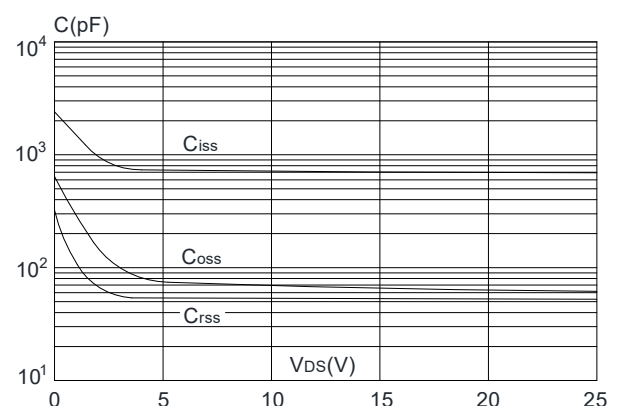


Figure 6: Capacitance Characteristics

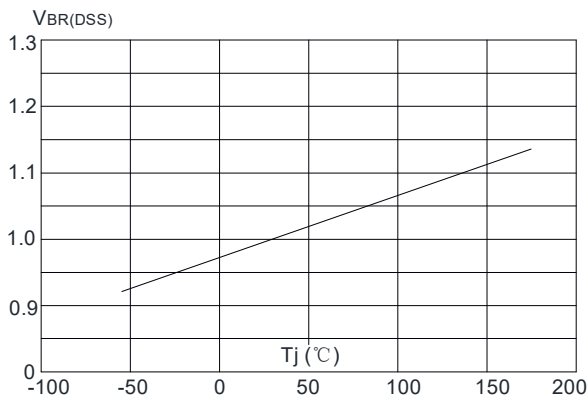


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

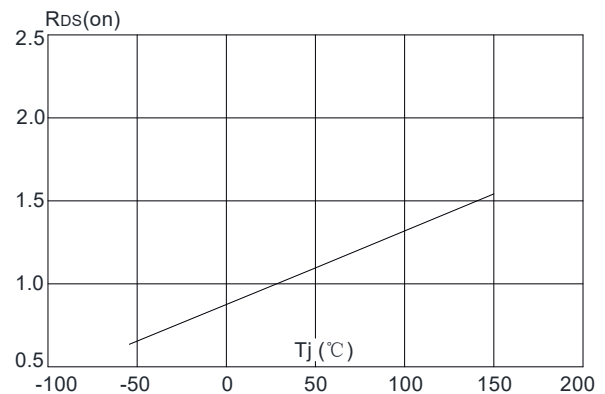


Figure 8: Normalized on Resistance vs. Junction Temperature

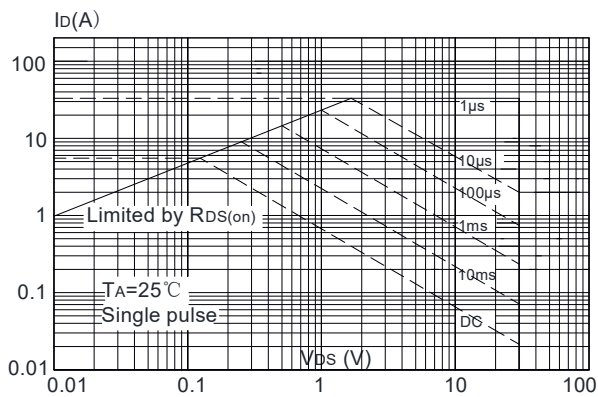


Figure 9: Maximum Safe Operating Area

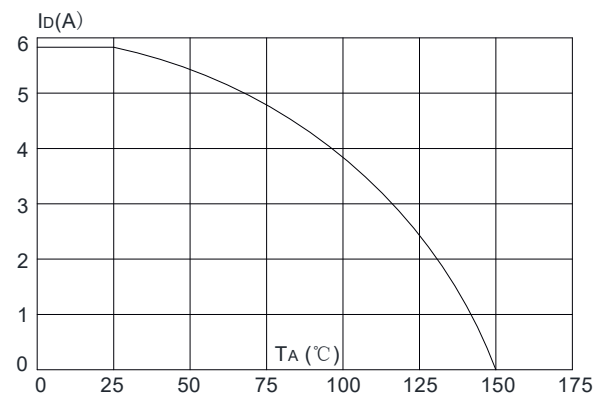


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

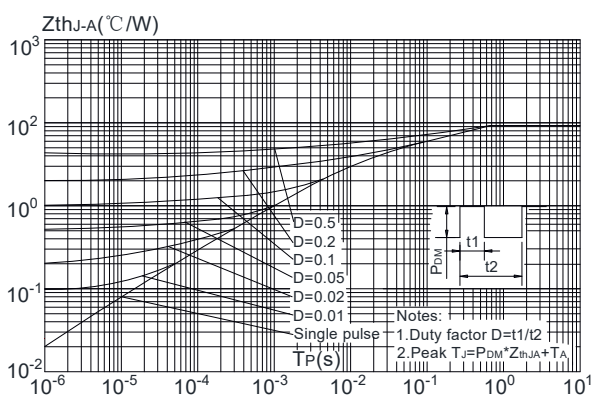
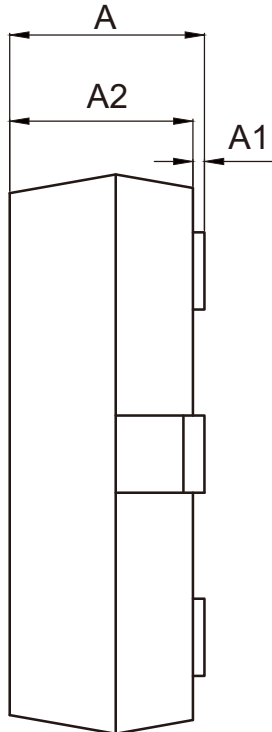
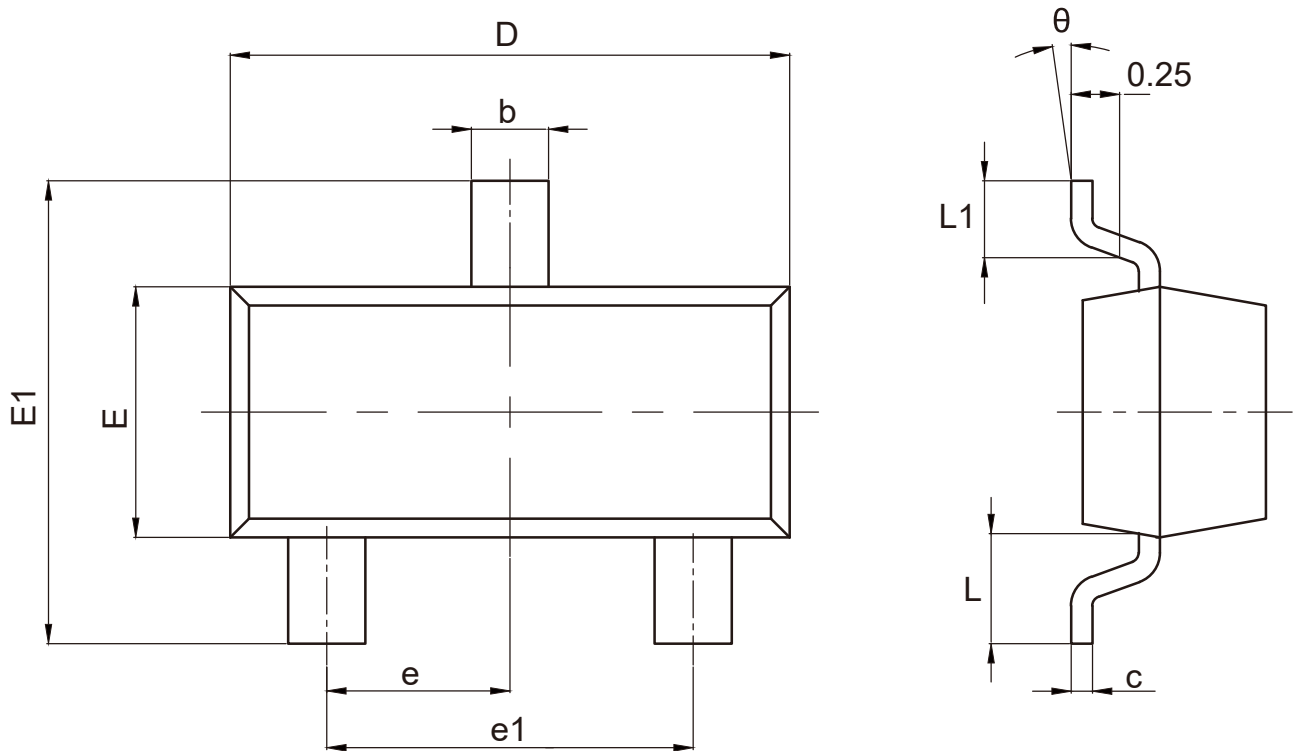


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

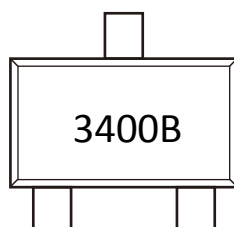
SOT-23 Package Outline Data



COMMON DIMENSIONS CUNITS MEASURE=MILLIMETER			
SYMBOL	MIN	NOM	MAX
A	0.900	--	1.150
A1	0.000	--	0.100
A2	0.900	--	1.050
c	0.100	--	0.200
b	0.300	0.400	0.500
D	2.800	2.900	3.000
E	1.200	--	1.400
E1	2.250	--	2.550
e	0.950TYP		
e1	1.800	1.900	2.000
L	0.550REF		
L1	0.300	0.400	0.500
θ	0°	--	8°

Unit:mm

Marking Information:



Previous Version

Version	Date	Subjects (major changes since last revision)
2.0	2024-03-06	Release of final version

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