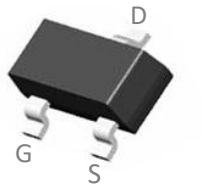
Description：

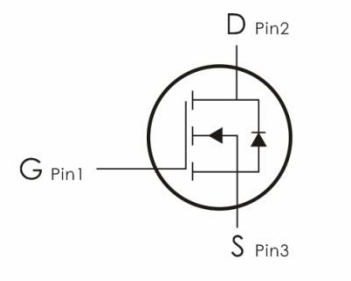
This N-Channel MOSFET uses advanced trench technology and design to provide excellent $R_{DS(on)}$ with low gate charge.

It can be used in a wide variety of applications.



Features：

1) V_{DS}=30V,I_D=4.2 A,$R_{DS(ON)}$<42m Ω @V_{GS}=10V （Typ：32mΩ）
2) Low gate charge.
3) Green device available.
4) Advanced high cell denity trench technology for ultra $R_{DS(ON)}$.
5) Excellent package for good heat dissipation.



Absolute Maximum Ratings： (T_C=25℃ 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℃	4.2	A
	Continuous Drain Current-T_A=100℃	2.8	
I_{DM}	Pulse Drain Current Tested note1	19	A
P_D	Power Dissipation-T_A=25℃	1.25	W
T_J, T_{STG}	Operating and Storage Junction Temperature Range	-55 to +150	℃

Thermal Characteristics：

Symbol	Parameter	Max	Units
$R_{\theta JA}$	Thermal Resistance,Junction to Ambient	100	℃/W

Package Marking and Ordering Information：

Part NO.	Marking	Package
DO3402AA	3402A	SOT-23-3

Electrical Characteristics： (T_C=25℃ unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Sourtce Breakdown Voltage	V_{GS}=0V,I_D=250μA	30	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{GS}=0V, V_{DS}=30V	---	---	1	μA
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=250μA	0.5	0.9	1.4	V
$R_{DS(ON)}$	Drain-Source On Resistance[note2]	V_{GS}=10V,I_D=4A	---	32	42	mΩ
		V_{GS}=4.5V,I_D=3A	---	36	48	
		V_{GS}=2.5V,I_D=2A	---	50	70	
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=15V, V_{GS}=0V, f=1MHz	---	280	---	pF
C_{oss}	Output Capacitance		---	30	---	
C_{rss}	Reverse Transfer Capacitance		---	25	---	
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DS}=15V,I_D=2A, V_{GS}=4.5V,R_{GEN}=3Ω	---	15	---	ns
t_r	Rise Time		---	42	---	ns
$t_{d(off)}$	Turn-Off Delay Time		---	16	---	ns
t_f	Fall Time		---	10	---	ns
Q_g	Total Gate Charge	V_{GS}=4.5V, V_{DS}=15V, I_D=4.2A	---	2.6	---	nC
Q_{gs}	Gate-Source Charge		---	0.6	---	nC
Q_{gd}	Gate-Drain “Miller” Charge		---	0.9	---	nC
Drain-Source Diode Characteristics						
V_{SD}	Forward Voltage	V_{GS}=0V,I_S=4.2A	---	---	1.2	V

I_S	Source drain current(Body Diode)	---	---	---	4.2	A
I_{SM}	Source Diode Forward Current	---	---	---	16	A

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%

Typical Characteristics: (T_C=25℃ unless otherwise noted)

Figure1: Output Characteristics

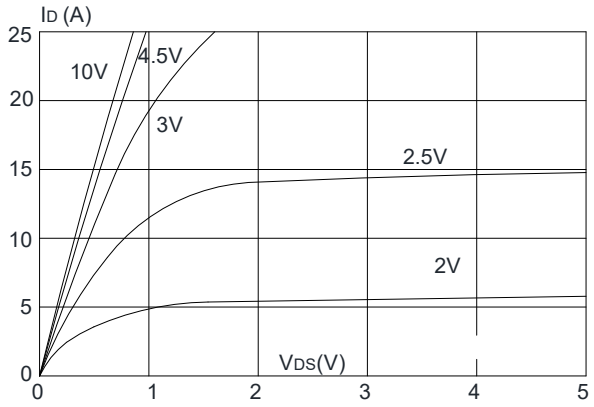


Figure 2: Typical Transfer Characteristics

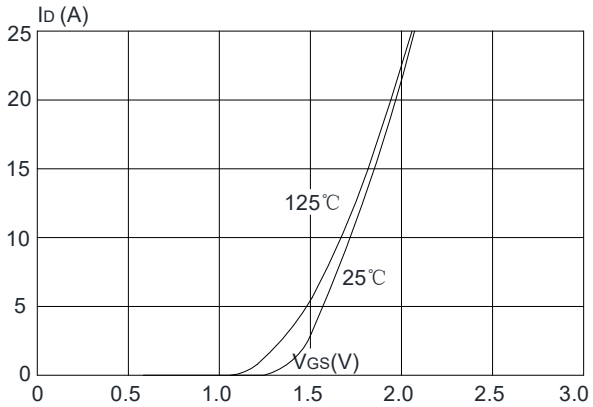


Figure 3: On-resistance vs. Drain Current

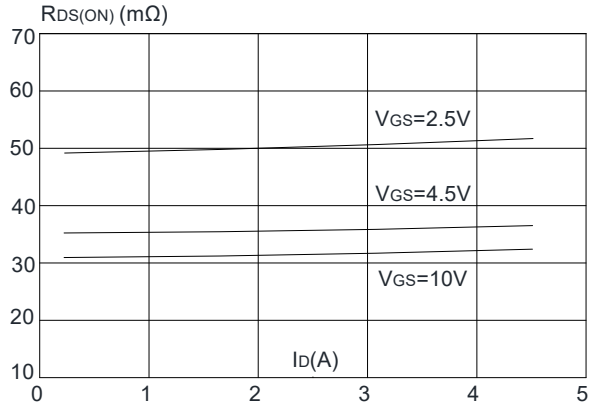


Figure 4: Body Diode Characteristics

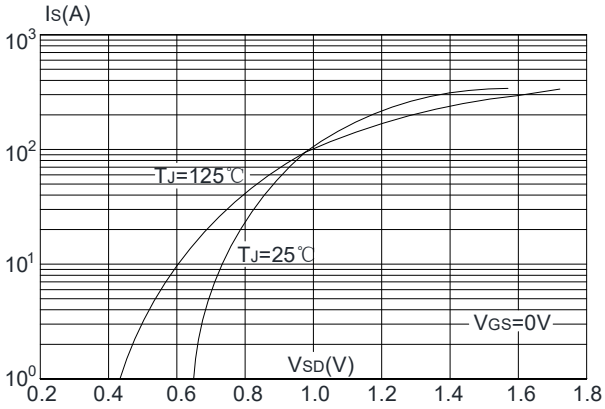


Figure 5: Gate Charge Characteristics

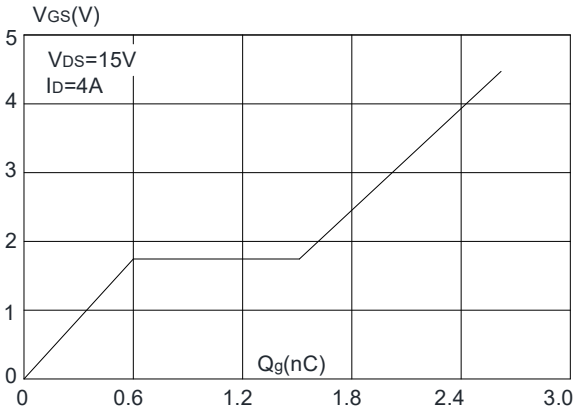


Figure 6: Capacitance Characteristics

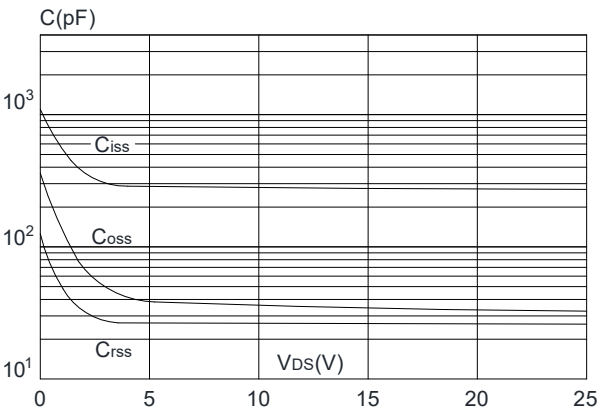


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

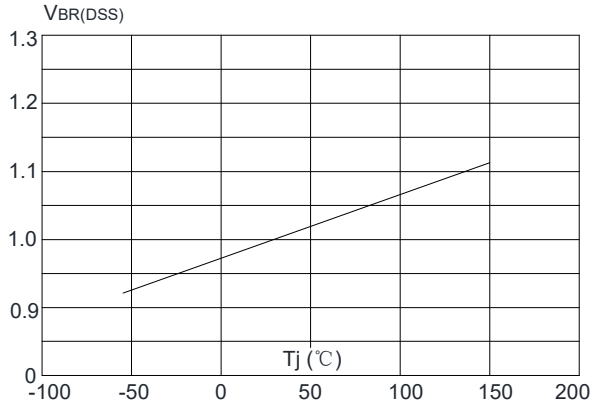


Figure 8: Normalized on Resistance vs. Junction Temperature

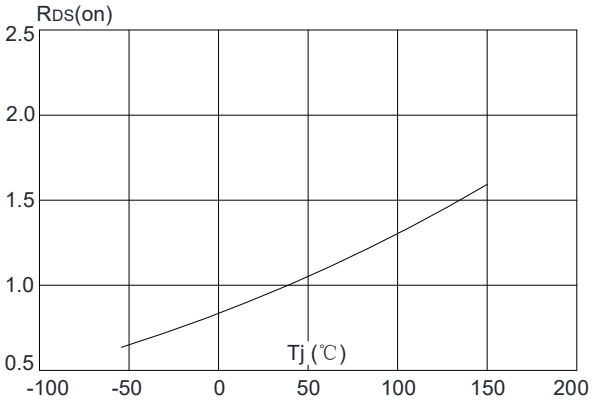


Figure 9: Maximum Safe Operating Area

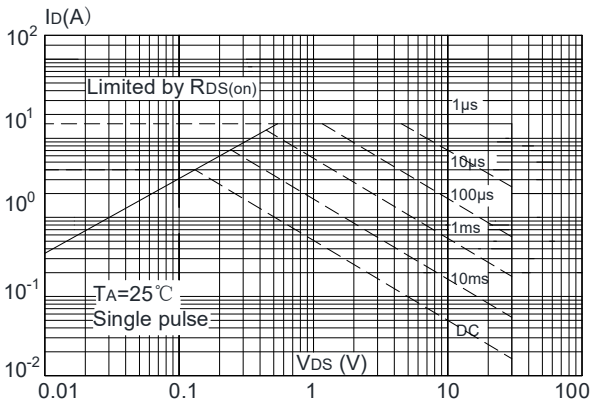


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

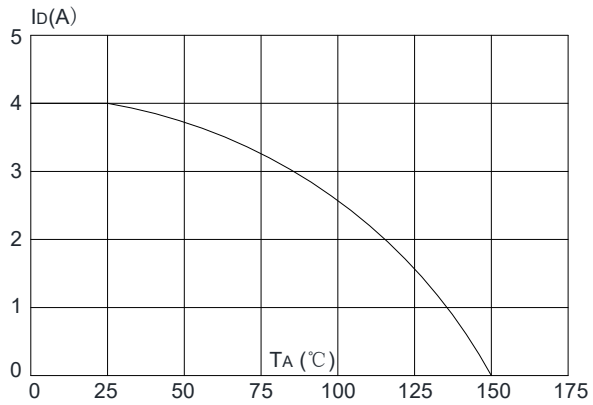


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient