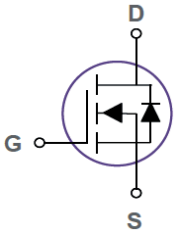
DAM210N010T1

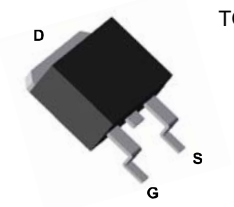
Silicon N-Channel Power MOSFET

V_{DSS}	100V
$I_{D(@25℃)}$	210A
$R_{DS(ON)}$ typ.	2.2mΩ

Features

- Fast Switching
- Split Gate Trench Technology
- Lead Free Product is Acquired
- Excellent $R_{DS(no)}$ and Low Gate Charge



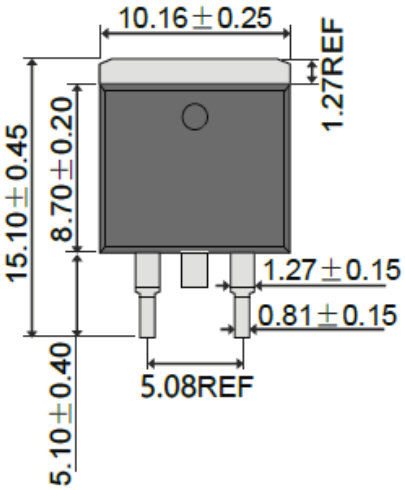


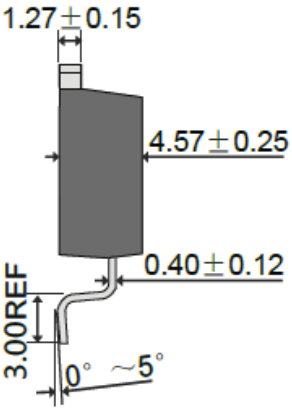
Applications

- PWM Applications
- Load Switch
- Power Management

Package Dimensions

Unit : mm





Absolute Maximum Ratings

(Tc = 25℃ unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Drain Source Voltage	V_{DS}	100	V
Gate Source Voltage	V_{GS}	± 20	V
Drain Current Continuous @ T_C = 25°C @ T_C = 100°C	I_D	210 132	A
Drain Current Pulsed(1)	I_{DM}	840	A
Single Pulse Avalanche Energy(2)	E_{AS}	418	mJ
Power Dissipation	P_D	272	W
Storage Temperature Range	T_{STG}	-55 to +150	°C
Operating Junction Temperature Range	T_J	-55 to +150	°C
Thermal Resistance Junction to Case	$R_{\theta JC}$	0.46	°C/W
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	62.5	°C/W

Electrical Characteristics @ T_J =25°C (unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
OFF Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V，I_{DS}=0.25mA	100	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{GS}=0V，V_{DS}=100V	-	-	1	μA
Gate To Source Forward Leakage	$I_{GSS(F)}$	V_{GS}=±20V，V_{DS}=0V	-	-	±100	nA
ON Characteristics						
Gate Threshold Voltage(3)	$V_{GS(th)}$	V_{DS}=V_{GS}，I_{DS}=0.25mA	2	3	4	V
Drain-Source On-State Resistance(3)	$R_{DS(on)}$	V_{GS}=10V，I_{DS}=20A	-	2.2	2.8	mΩ
Gate Resistance	R_g	V_{DS}=V_{GS}，f=1MHz	-	2.7	-	Ω
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS}=50V	-	8390	-	pF
Output Capacitance	C_{oss}	V_{GS}=0V	-	2780	-	
Reverse Transfer Capacitance	C_{rss}	Freq.=1MHz	-	127	-	
Switching Characteristics						
Turn-On Delay Time	$t_{d(on)}$	V_{DD}=50V	-	33	-	ns
Rise Time	t_r	V_{GS}=10V	-	28	-	
Turn-Off Delay Time	$t_{d(off)}$	I_D=50A	-	102	-	
Fall Time	t_f	R_G=3Ω	-	36	-	
Total Gate Charge	Q_g	V_{DS}=50V	-	112	-	nC
Gate to Source Charge	Q_{gs}	V_{GS}=10V	-	31	-	
Gate to Drain Charge	Q_{gd}	I_{DS}=50A	-	26	-	
Source-Drain Diode Characteristics						
Diode Forward Voltage(3)	V_{SD}	V_{GS}=0V，I_S=40A	-	0.8	1.2	V
Diode Forward Current(4)	I_S		-	-	210	A
Reverse Recovery Time	T_{rr}	I_S=20A，di_F/dt=100A/μs	-	89	-	ns
Reverse Recovery Charge	Q_{rr}		-	178	-	nC

Notes:

1. Repetitive Rating: pulse width limited by maximum junction temperature
2. EAS Condition:T_J=25℃,V_{DD}=50V,R_G=25Ω,L=0.5Mh
3. Pulse Test: pulse width≤300μs, duty cycle≤2%
4. Surface Mounted on FR4 Board,t≤10 sec

Typical Performance Characteristics

Figure 1. Output Characteristics

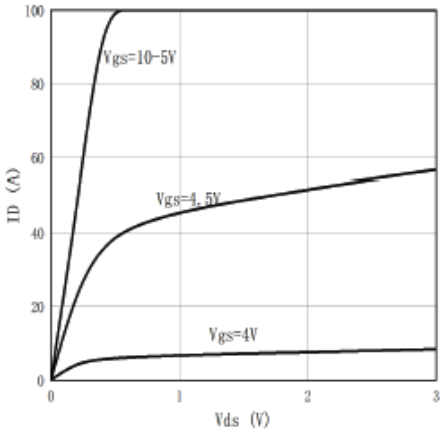


Figure 2. Transfer Characteristics

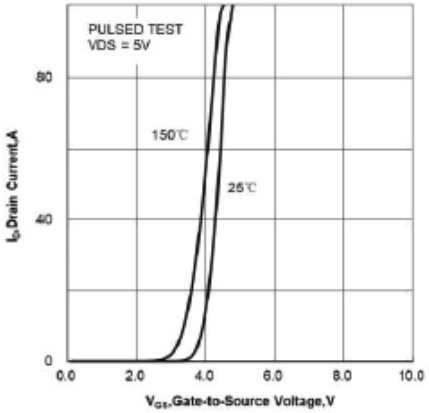


Figure 3. Drain-to-Source On Resistance vs Drain Current

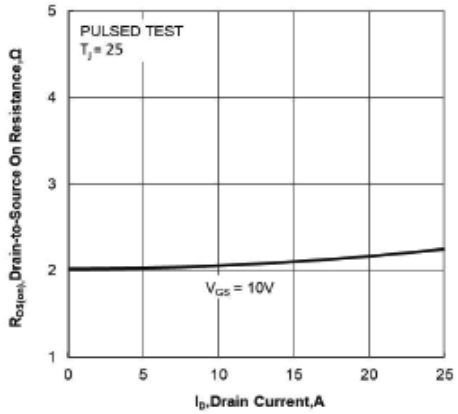


Figure 4. Body Diode Forward Voltage vs Source Current and Temperature

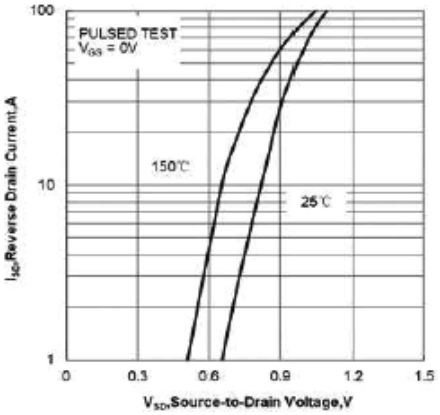


Figure 5. Capacitance Characteristics

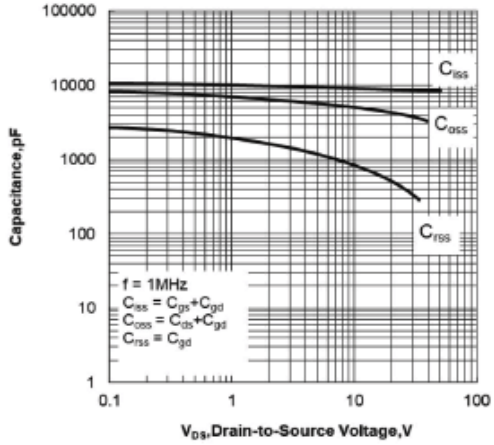
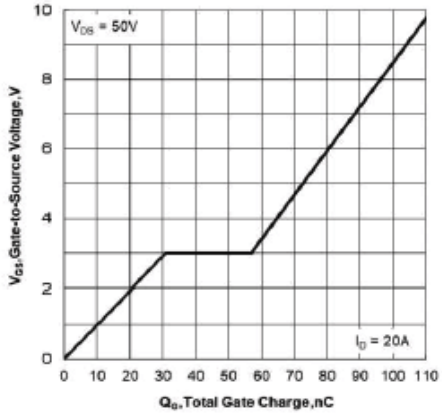


Figure 6. Gate Charge Characteristics



Typical Performance Characteristics

Figure 7. Normalized Breakdown Voltage vs Junction Temperature

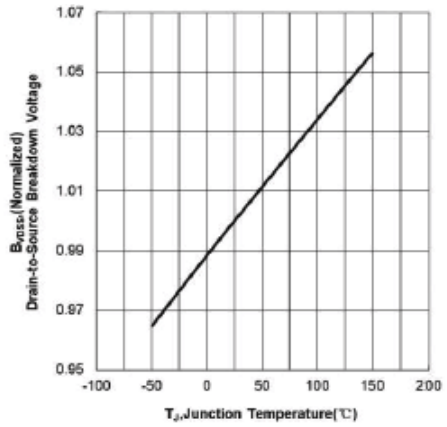


Figure 8. Normalized On Resistance vs Junction Temperature

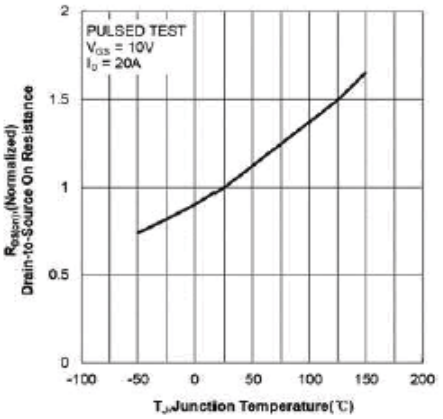


Figure 9. Maximum Continuous Drain Current vs Case Temperature

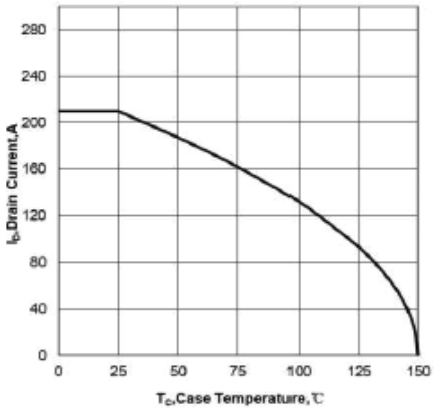


Figure 10. Maximum Power Dissipation vs Case Temperature

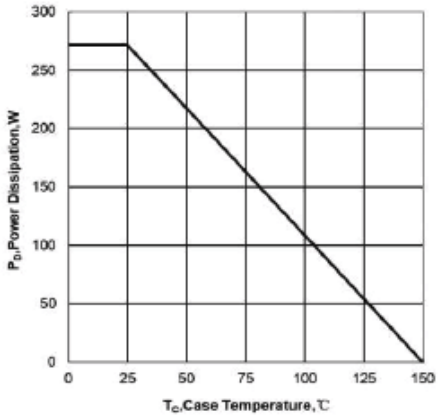


Figure11. Drain-to-Source On Resistance vs Gate Voltage and Drain Current

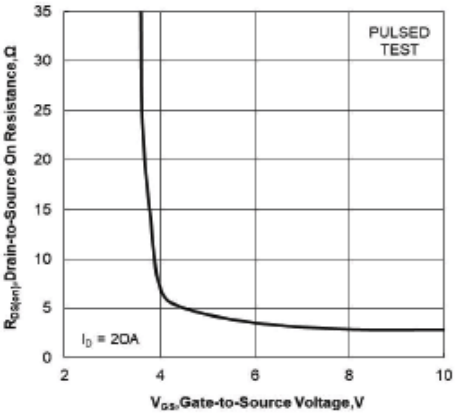
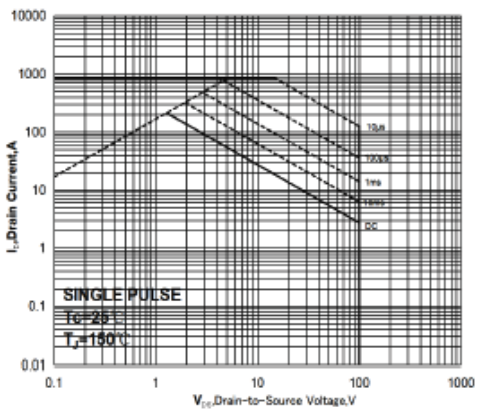
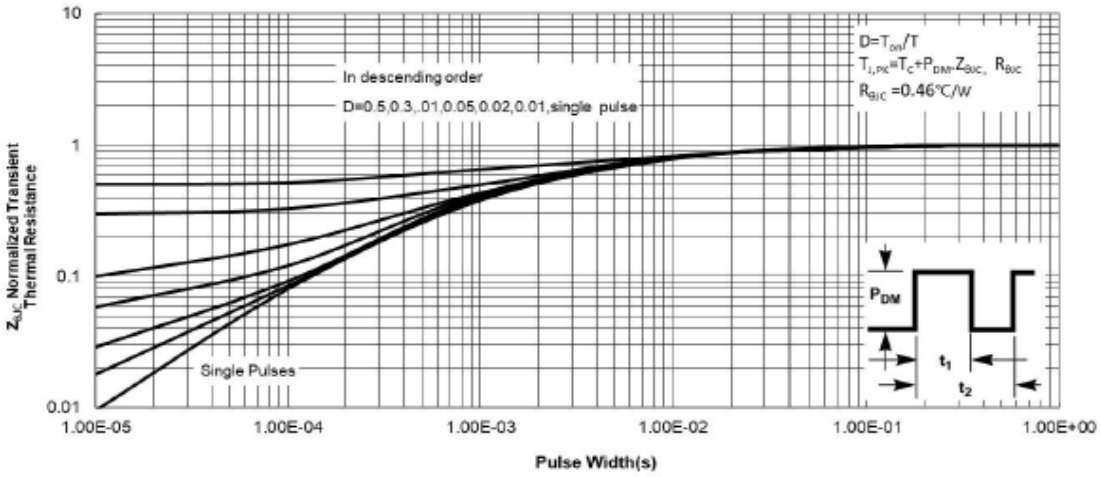


Figure 12. Maximum Safe Operating Area



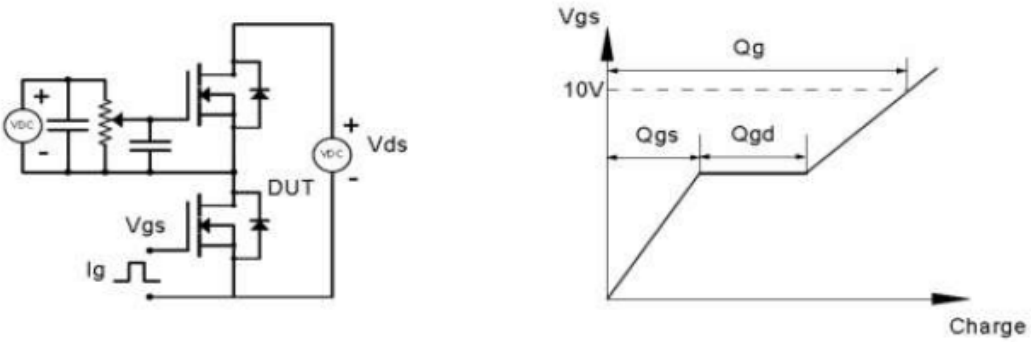
Typical Performance Characteristics

Figure 13. Maximum Effective Transient Thermal Impedance, Junction-to-Case

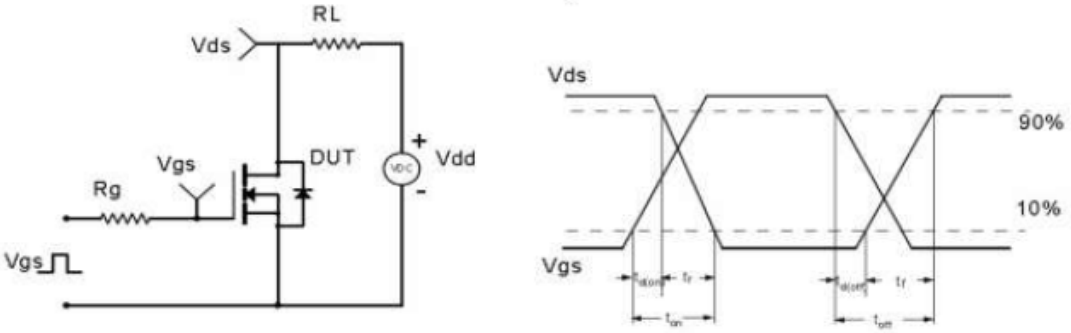


Test Circuit & Waveform

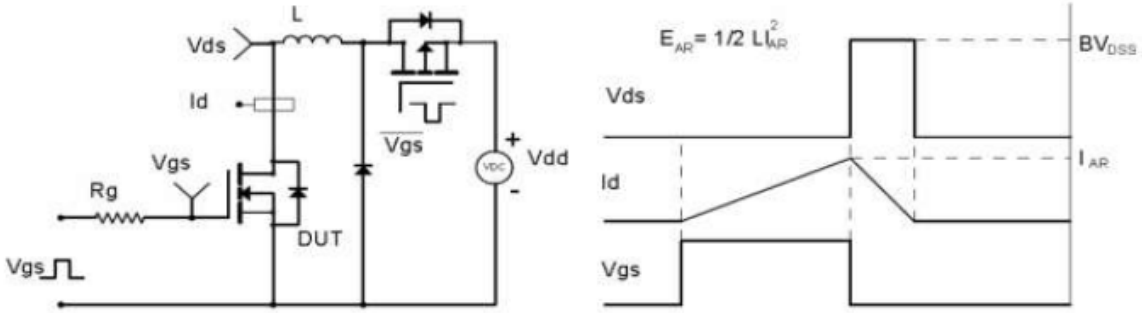
Gate Charge Test Circuit & Waveform



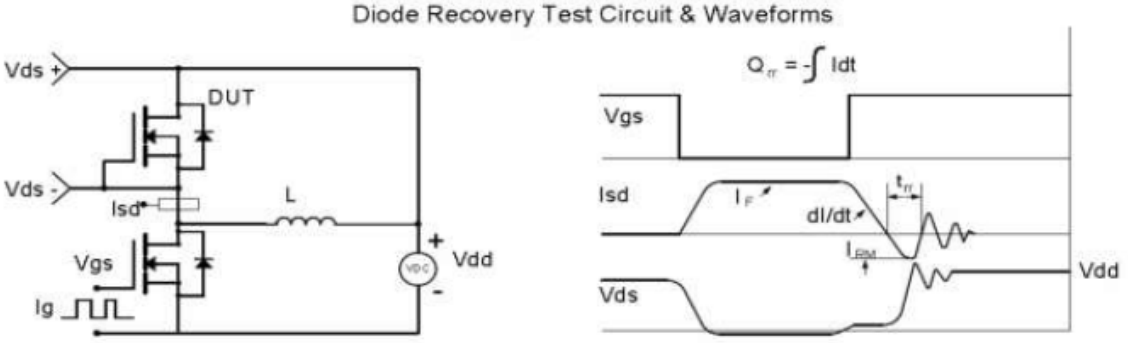
Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms



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