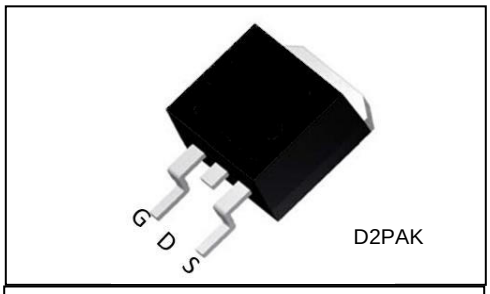
Features:

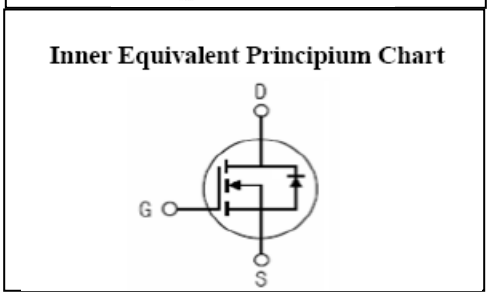
- **Fast Switching**
- **Low Gate Charge and Rdson**
- **Low Reverse transfer capacitances**
- **100% Single Pulse avalanche energy Test**

Applications:

- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply

V_{DSS}	60	V
I_D	49	A
P_D	94	W
$R_{DS(ON)type}$	13	mΩ





Absolute （Tc= 25℃ unless otherwise specified）:

Symbol	Parameter	Rating	Units
V_{DSS}	Drain-to-Source Voltage	60	V
I_D	Continuous Drain Current	49	A
	Continuous Drain Current T_C = 100 °C	35	A
I_{DM}	Pulsed Drain Current	160	A
V_{GS}	Gate-to-Source Voltage	±20	V
E_{AS} a2	Single Pulse Avalanche Energy	150	mJ
E_{AR} a1	Avalanche Energy ,Repetitive	10	mJ
I_{AR} a1	Avalanche Current	25	A
dv/dt a3	Peak Diode Recovery dv/dt	5.0	V/ns
P_D	Power Dissipation	94	W
T_J, T_{stg}	Operating Junction and Storage Temperature Range	175, –55 to 175	℃
T_L	MaximumTemperature for Soldering	300	℃

Electrical Characteristics（Tc= 25℃ unless otherwise specified）：

OFF Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
V_{DSS}	Drain to Source Breakdown Voltage	V_{GS}=0V, I_D=250μA	60	--	--	V
$\Delta BV_{DSS}/\Delta T_J$	Bvdss Temperature Coefficient	ID=250uA,Reference25℃	--	0.06	--	V/℃
I_{DSS}	Drain to Source Leakage Current	V_{DS} = 60V, V_{GS}= 0V, T_a = 25℃	--	--	1	μA
		V_{DS} =48V, V_{GS}= 0V, T_a = 125℃	--	--	250	
$I_{GSS(F)}$	Gate to Source Forward Leakage	V_{GS} =+20V	--	--	1	μA
$I_{GSS(R)}$	Gate to Source Reverse Leakage	V_{GS} =-20V	--	--	-1	μA

ON Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
$R_{DS(ON)}$	Drain-to-Source On-Resistance	V_{GS}=10V,I_D=25A	--	13.0	17.0	mΩ
$V_{GS(TH)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250μA	1.5	--	3.5	V
Pulse width tp≤380μs, δ ≤2%						

Dynamic Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
g_{fs}	Forward Transconductance	V_{DS}=5V, I_D =25A	19	--	--	S
C_{iss}	Input Capacitance	V_{GS} = 0V V_{DS} = 30V f = 1.0MHz	--	2080	--	pF
C_{oss}	Output Capacitance		--	160	--	
C_{rss}	Reverse Transfer Capacitance		--	120	--	

Resistive Switching Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
$t_{d(ON)}$	Turn-on Delay Time	I_D =25A V_{DD} = 30V V_{GS} = 10V R_G = 3.0Ω	--	7.6	--	ns
tr	Rise Time		--	5.2	--	
$t_{d(OFF)}$	Turn-Off Delay Time		--	28.2	--	
t_f	Fall Time		--	5.8	--	
Q_g	Total Gate Charge	I_D =25A V_{DD} =30V V_{GS} = 10V	--	52	--	nC
Q_{gs}	Gate to Source Charge		--	6.5	--	
Q_{gd}	Gate to Drain (“Miller”)Charge		--	17	--	

Source-Drain Diode Characteristics						
Symbol	Parameter	Test Conditions	Rating			Units
			Min.	Typ.	Max.	
I_S	Continuous Source Current (Body Diode)		--	--	49	A
I_{SM}	Maximum Pulsed Current (Body Diode)		--	--	160	A
V_{SD}	Diode Forward Voltage	I_S=49A,V_{GS}=0V	--	--	1.5	V
trr	Reverse Recovery Time	I_S=25A,T_j = 25° C dI_F/dt=100A/us, V_{GS}=0V	--	50	--	ns
Qrr	Reverse Recovery Charge		--	120	--	nC
Pulse width tp≤380μs, δ ≤2%						

Symbol	Parameter	Typ.	Units
$R_{\theta JA}$	Junction-to-Ambient	1.5	℃/W

[a1]: Repetitive rating; pulse width limited by maximum junction temperature
[a2]: EAS condition : Tj=25 ,VDD= ℃ 30V,VG=10V,L=0.5mH,Rg=25Ω
[a3]: I_{SD} =25A,di/dt ≤100A/us,V_{DD}≤BV_{DS}, Start T_J=25℃

Test Circuit and Waveform

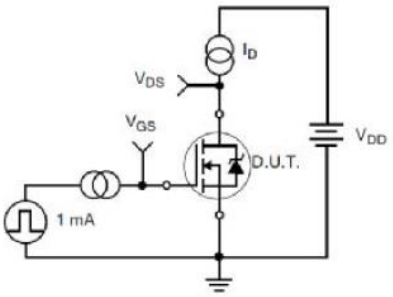


Figure 17. Gate Charge Test Circuit

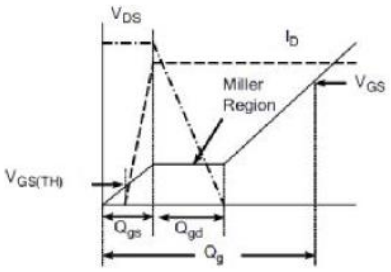


Figure 18. Gate Charge Waveform

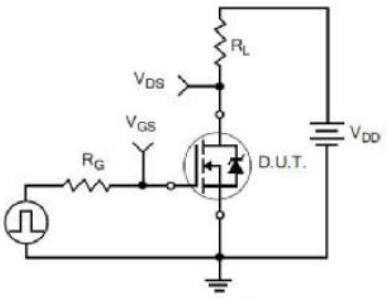


Figure 19. Resistive Switching Test Circuit

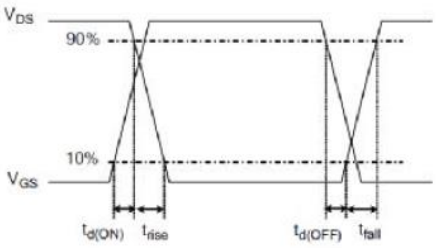


Figure 20. Resistive Switching Waveforms

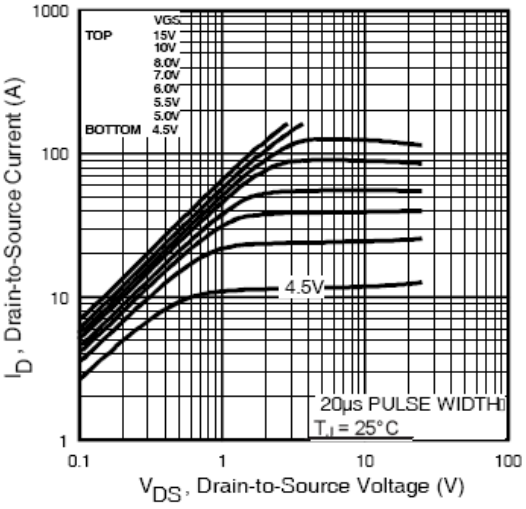


Fig 1. Typical Output Characteristics

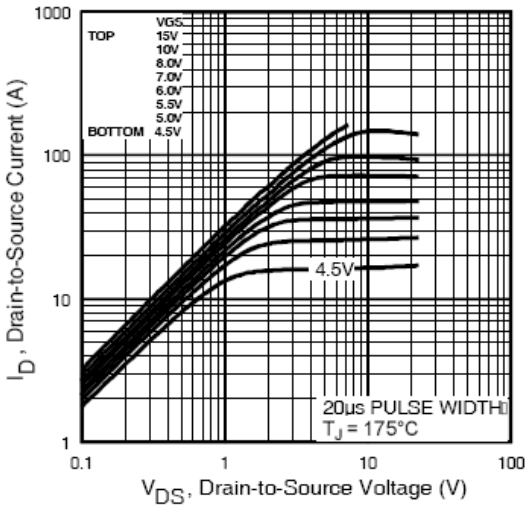


Fig 2. Typical Output Characteristics

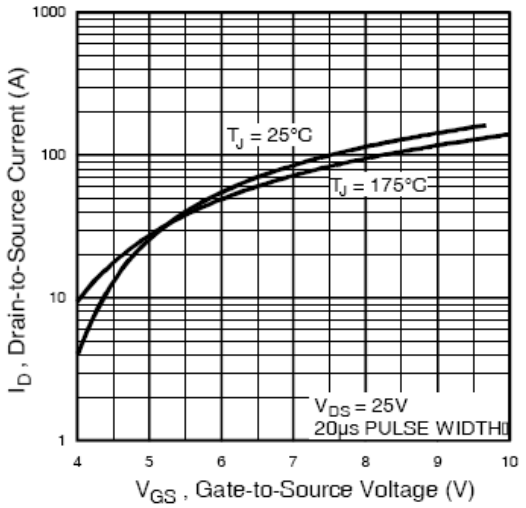


Fig 3. Typical Transfer Characteristics

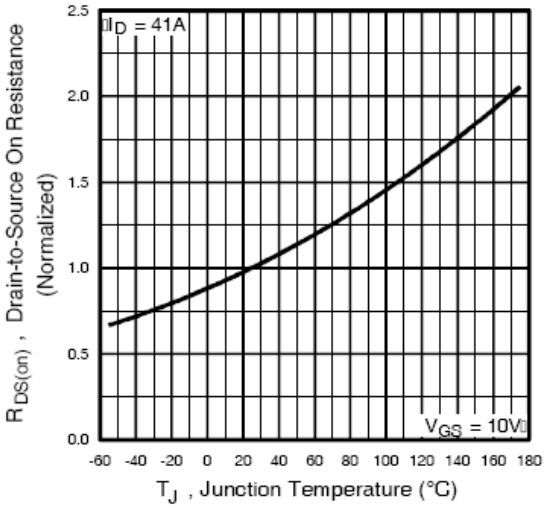


Fig 4. Normalized On-Resistance Vs. Temperature

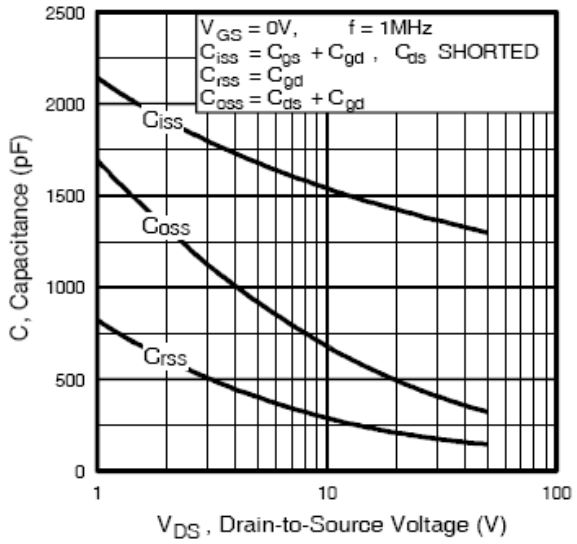


Fig 5. Typical Capacitance Vs. Drain-to-Source Voltage

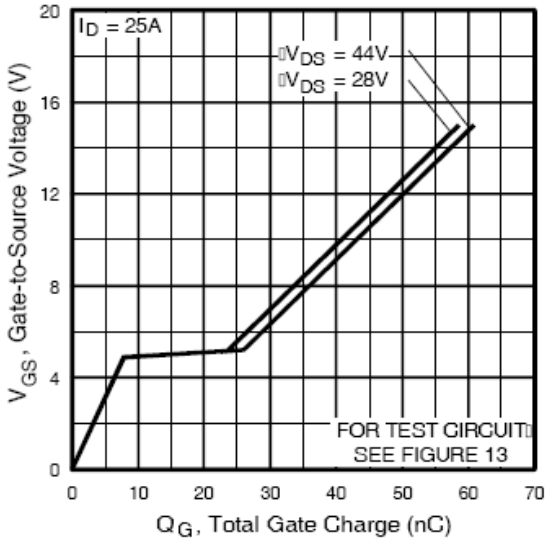


Fig 6. Typical Gate Charge Vs. Gate-to-Source Voltage

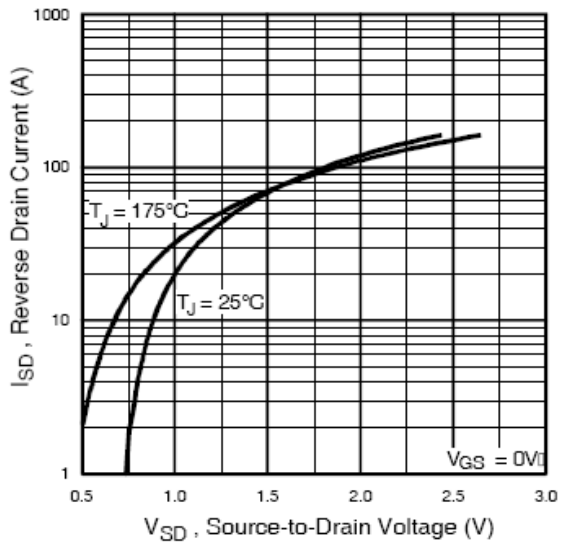


Fig 7. Typical Source-Drain Diode Forward Voltage

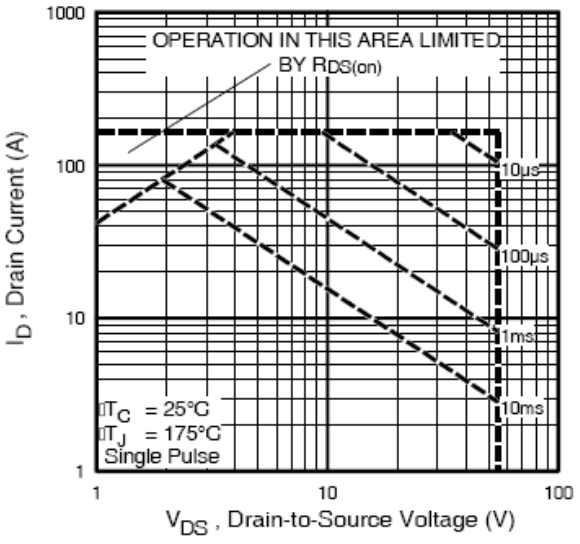


Fig 8. Maximum Safe Operating Area