

ELECTRICAL CHARACTERISTICS ($T_J=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	80	-	-	V	$V_{GS}=0V, I_D=250\mu A$
Gate-Threshold Voltage	$V_{GS(th)}$	1	-	2.5	V	$V_{DS}=V_{GS}, I_D=250\mu A$
Forward Transconductance	g_{fs}	-	75	-	S	$V_{DS}=5V, I_D=20A$
Gate-Source Leakage Current	I_{GSS}	-	-	± 100	nA	$V_{GS}=\pm 20V$
Drain-Source Leakage Current	I_{DSS}	-	-	1	μA	$V_{DS}=64V, V_{GS}=0V, T_J=25^\circ C$
		-	-	5		$V_{DS}=64V, V_{GS}=0V, T_J=55^\circ C$
Static Drain-Source On-Resistance ²	$R_{DS(ON)}$	-	-	6.9	m Ω	$V_{GS}=10V, I_D=15A$
		-	-	8.8		$V_{GS}=4.5V, I_D=15A$
Total Gate Charge	Q_g	-	40	-	nC	$I_D=15A$ $V_{DS}=40V$ $V_{GS}=10V$
Gate-Source Charge	Q_{gs}	-	7.2	-		
Gate-Drain Change	Q_{gd}	-	6.5	-		
Turn-on Delay Time	$T_{d(on)}$	-	8.3	-	nS	$V_{DD}=40V$ $I_D=15A$ $V_{GS}=10V$ $R_G=3\Omega$
Rise Time	T_r	-	4.2	-		
Turn-off Delay Time	$T_{d(off)}$	-	36	-		
Fall Time	T_f	-	6.9	-		
Input Capacitance	C_{iss}	-	2860	-	pF	$V_{GS}=0V$ $V_{DS}=40V$ $f=1MHz$
Output Capacitance	C_{oss}	-	410	-		
Reverse Transfer Capacitance	C_{rss}	-	38	-		
Source-Drain Diode						
Diode Forward Voltage ²	V_{SD}	-	-	1.2	V	$I_S=1A, V_{GS}=0V$
Continuous Source Current ¹	I_S	-	-	102	A	$V_G=V_D=0, \text{Force Current}$
Reverse Recovery Time	T_{rr}	-	24	-	nS	$I_F=20A, dI/dt=100A/\mu s,$
Reverse Recovery Charge	Q_{rr}	-	85	-	nC	$T_J=25^\circ C$

Notes:

1. The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper.
2. The data tested by pulsed pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
3. The power dissipation is limited by 150°C junction temperature.

CHARACTERISTIC CURVES

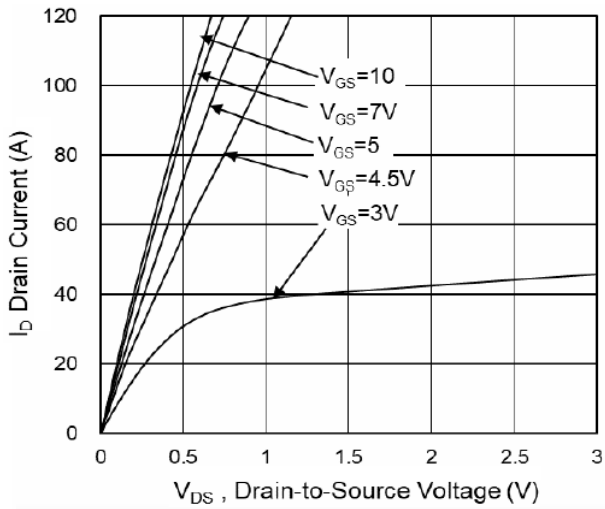


Fig.1 Typical Output Characteristics

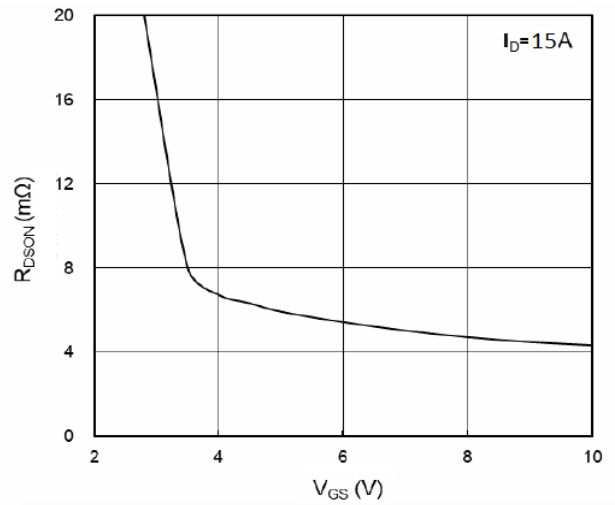


Fig.2 On-Resistance vs G-S Voltage

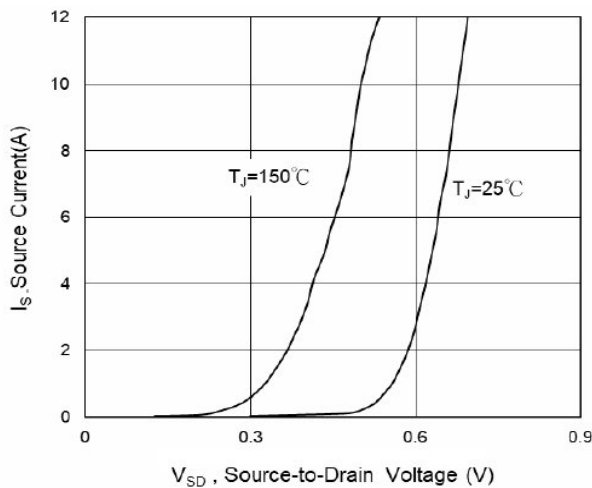


Fig.3 Source Drain Forward Characteristics

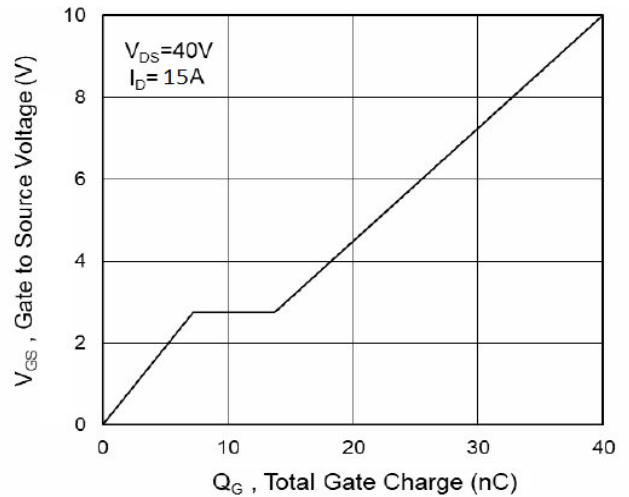


Fig.4 Gate-Charge Characteristics

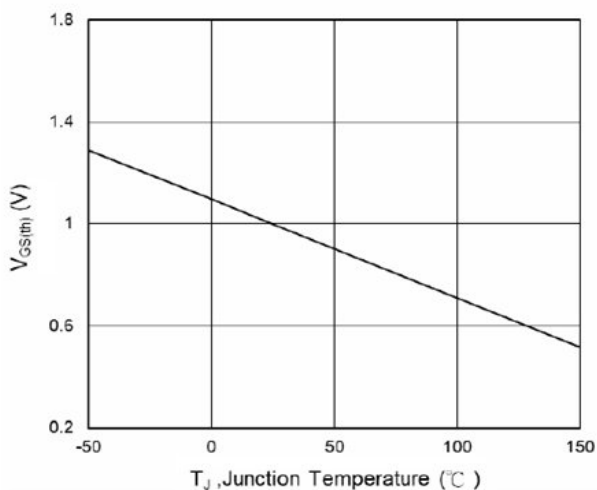


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

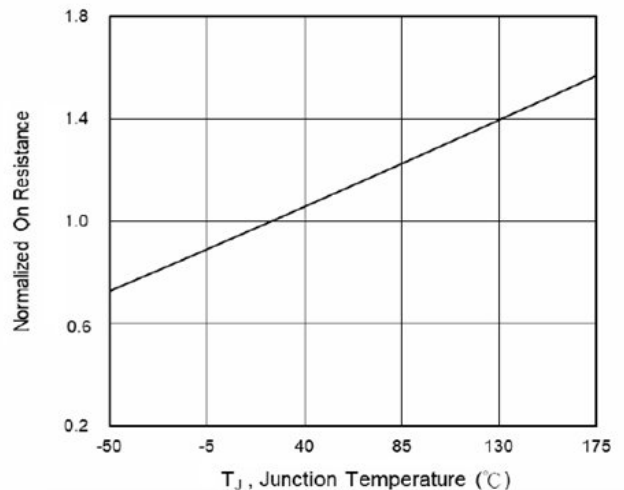


Fig.6 Normalized $R_{DS(on)}$ vs. T_J

CHARACTERISTIC CURVES

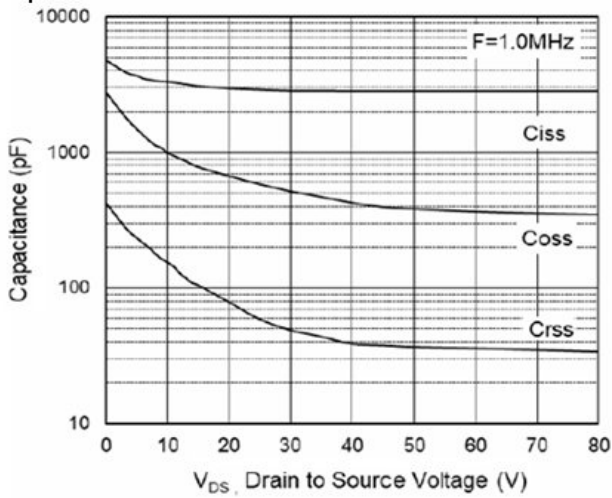


Fig.7 Capacitance

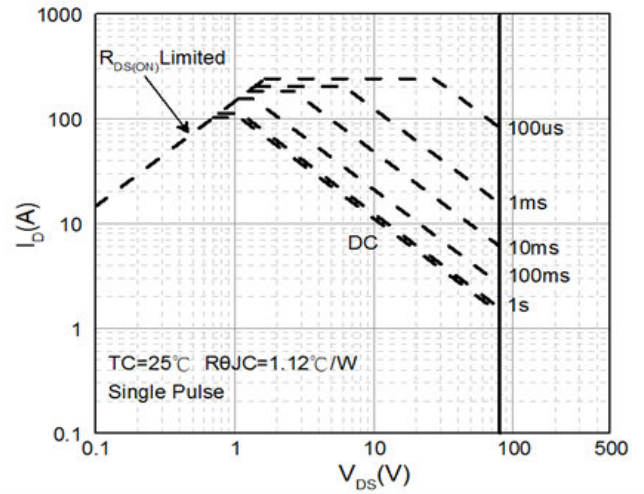


Fig.8 Safe Operating Area

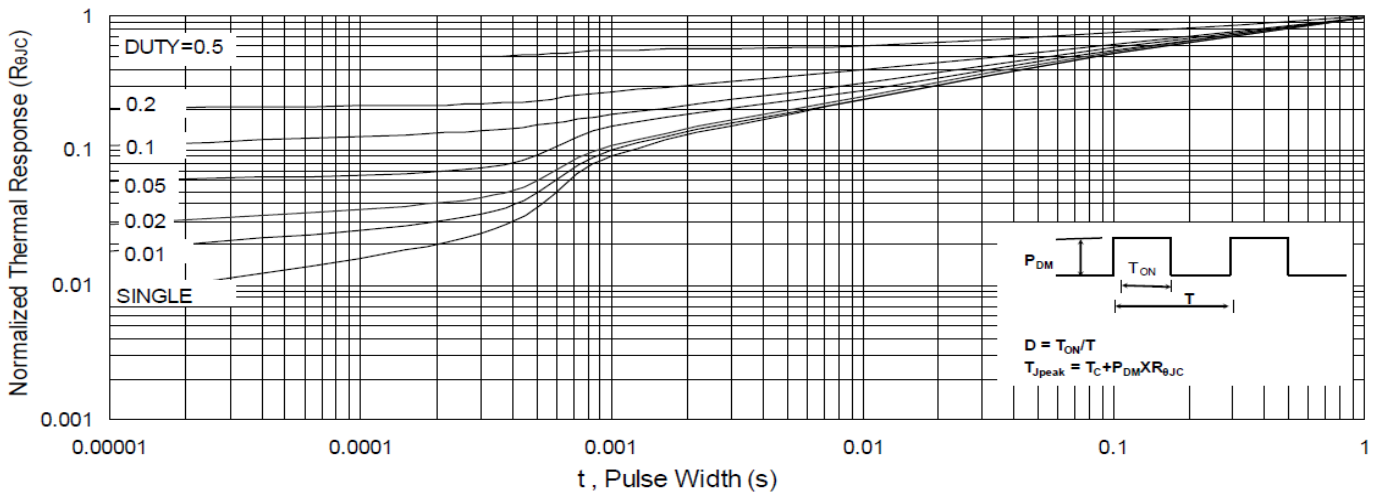


Fig.9 Normalized Maximum Transient Thermal Impedance

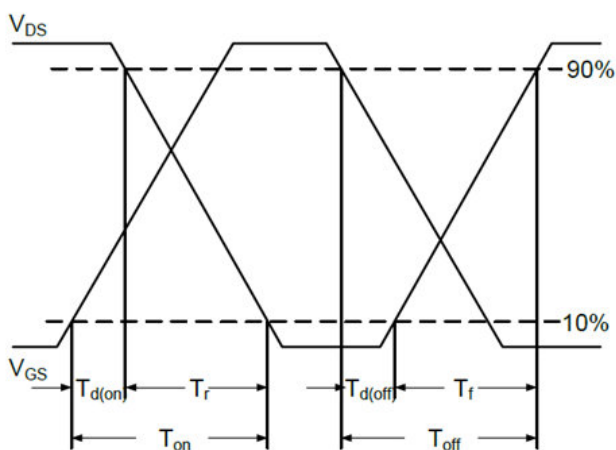


Fig.10 Switching Time Waveform

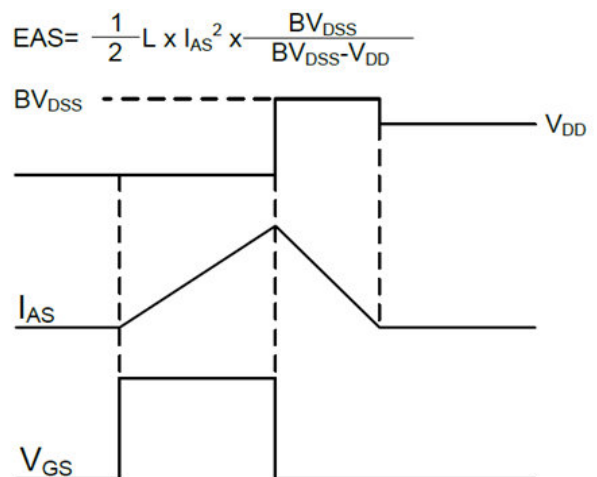


Fig.11 Unclamped Inductive Switching Waveform