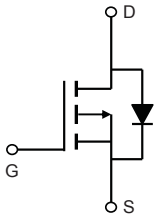
J7116DFN

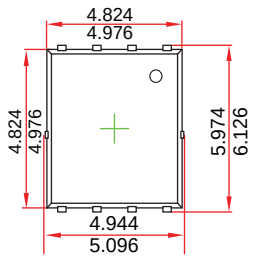
P-Channel MOSFET

■ Features

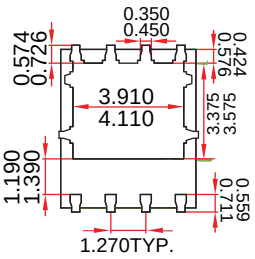
- V_{DS} -30V
- I_D -75A
- $R_{DS(ON)}$ (at V_{GS} =-10V) = 5.3mΩ(Typ.)
- $R_{DS(ON)}$ (at V_{GS} =-4.5V) = 8.4mΩ(Typ.)



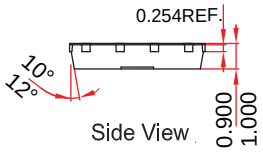
DFN5*6-8



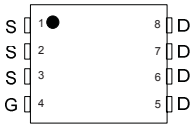
Top View



Bottom View



Side View



Dimensions in millimeter

■ Absolute Maximum Ratings (T_A = 25℃ unless otherwise noted.)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current	T_C=25℃	I_D	-75	A
Pulsed Drain Current	T_C=25℃	I_{DM}	-300	
Single Pulsed Avalanche Energy (Note 1)		E_{AS}	122	mJ
Power Dissipation	T_C=25℃	P_D	45	W
Power Dissipation	T_A=25℃		4.2	
Thermal Resistance, Junction- to-Ambient (Note 2)		$R_{\theta JA}$	30	℃/W
Thermal Resistance, Junction- to-Case (Note 2)		$R_{\theta JC}$	2.8	
Junction Temperature		T_J	150	℃
Storage Temperature Range		T_{stg}	-55 to 150	
Lead Temperature for Soldering Purposes (1/8'' from case for 10s)		T_L	260	

Notes 1. EAS condition: L=0.5mH, R_G=25Ω, I_{AS} = -20A, V_{GS} =-10V. Starting T_J = 25°C

2. Mounted on a glass epoxy board of 50 mm x 50 mm x 0.8 mm

■ Electrical Characteristics (T_J = 25℃ unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	I_D = -250μA, V_{GS} = 0V	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}= -30V, V_{GS} = 0V			-1	μA
Gate-Body Leakage Current	I_{GSS}	V_{DS} = 0V, V_{GS} = ±20V			±100	nA
On characteristics (note1)						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS} , I_D = -250μA	-1.0		-2.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS} = -10V, I_D = -20A		5.3	8	mΩ
		V_{GS} = -4.5V, I_D = -20A		8.4	13	
Dynamic characteristics (note 2)						
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS} = -15V, f = 1MHz		3770		pF
Output Capacitance	C_{oss}			545		
Reverse Transfer Capacitance	C_{rss}			395		
Switching characteristics (note 2)						
Total Gate Charge	Q_g	V_{DS} = -15V, I_D = -20A V_{GS} = -10V		65		nC
Gate Source Charge	Q_{gs}			16.1		
Gate Drain Charge	Q_{gd}			18.1		
Turn-On DelayTime	$t_{d(on)}$	V_{DD}=-15V,I_D=-20A, V_{GS}=-10V,R_G=3Ω		14.4		ns
Turn-On Rise Time	t_r			11.2		
Turn-Off DelayTime	$t_{d(off)}$			99.5		
Turn-Off Fall Time	t_f			47.5		
Drain-Source Diode Characteristics						
Reverse Recovery Time	t_{rr}	T_j=25℃,I_{sd}=-20A, V_{GS}=0V di/dt=-100A/μs		37		nS
Reverse Recovery Charge	Q_{rr}			35		nC
Diode Forward Voltage	V_{SD}	I_S = -20 A,V_{GS} = 0V		-0.8	-1.2	V

Notes 1. Pulse Test : Pulse Width≤300μs, duty cycle ≤2%.

2. Guaranteed by design, not subject to production.

■ Typical Characterisitics

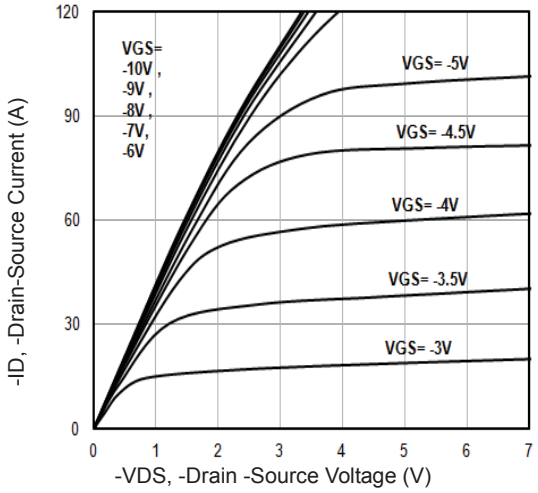


Fig1. Typical Output Characteristics

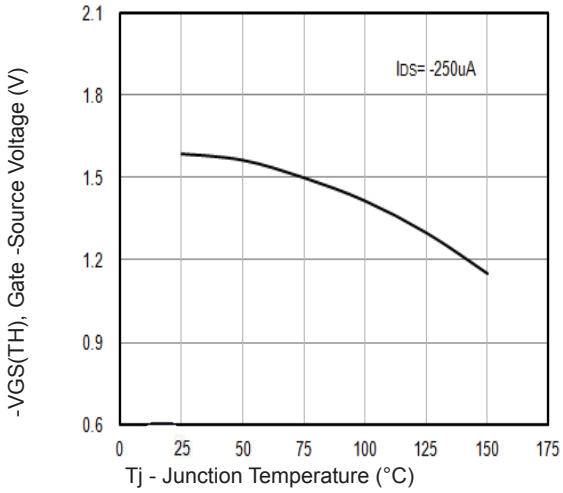


Fig2. $-V_{GS(TH)}$ Gate -Source Voltage Vs.Tj

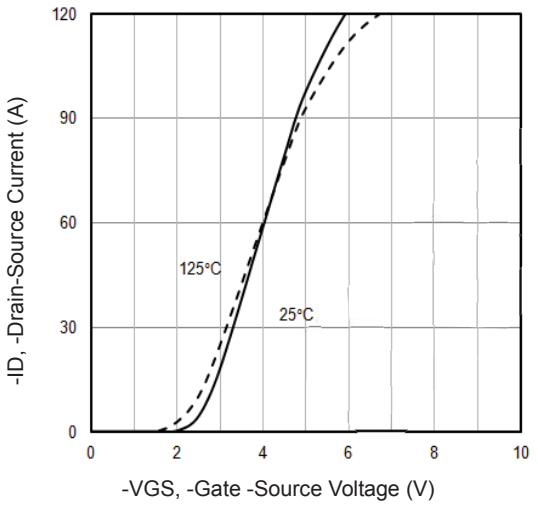


Fig3. Typical Transfer Characteristics

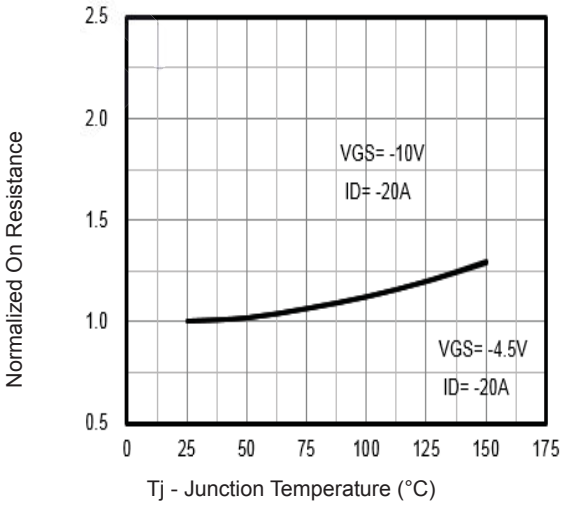


Fig4. Normalized On-Resistance Vs. Tj

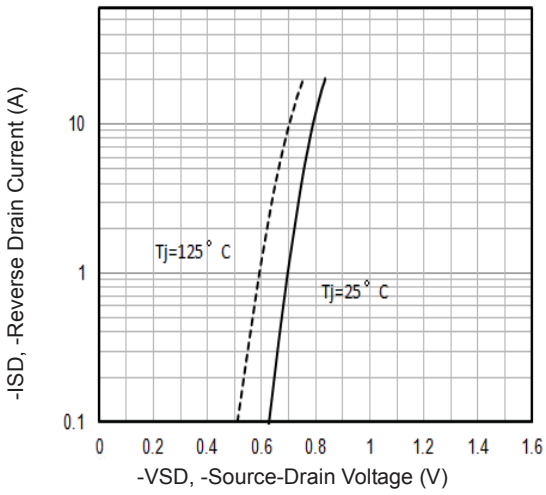


Fig5. Typical Source-Drain Diode Forward Voltage

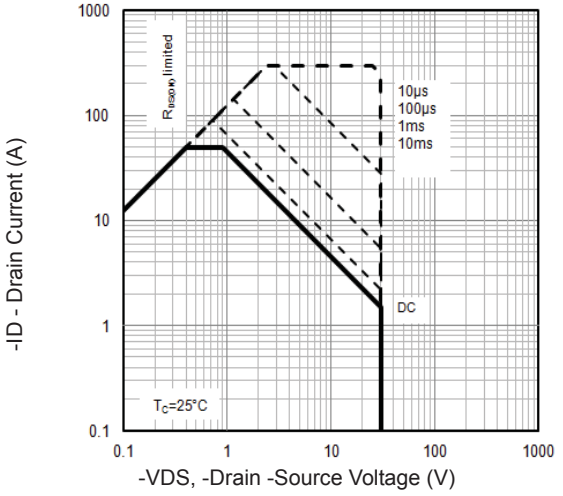


Fig6. Maximum Safe Operating Area

Typical Characteristics

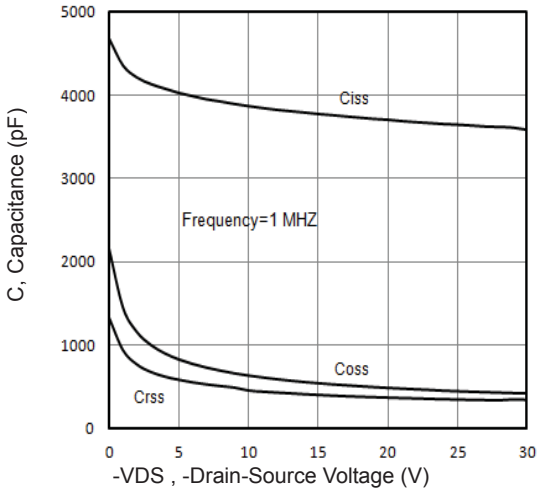


Fig7. Typical Capacitance Vs.Drain-Source Voltage

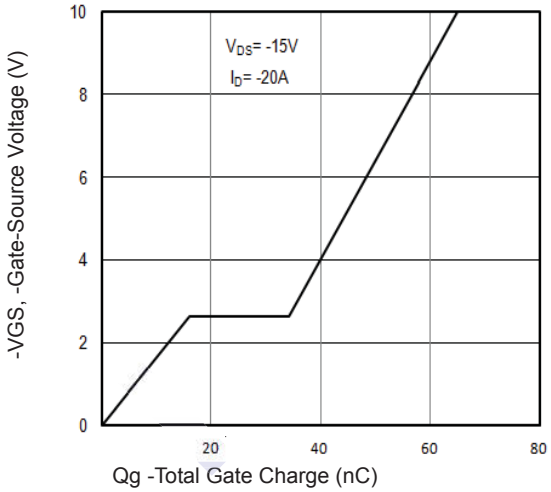


Fig8. Typical Gate Charge Vs.Gate-Source Voltage

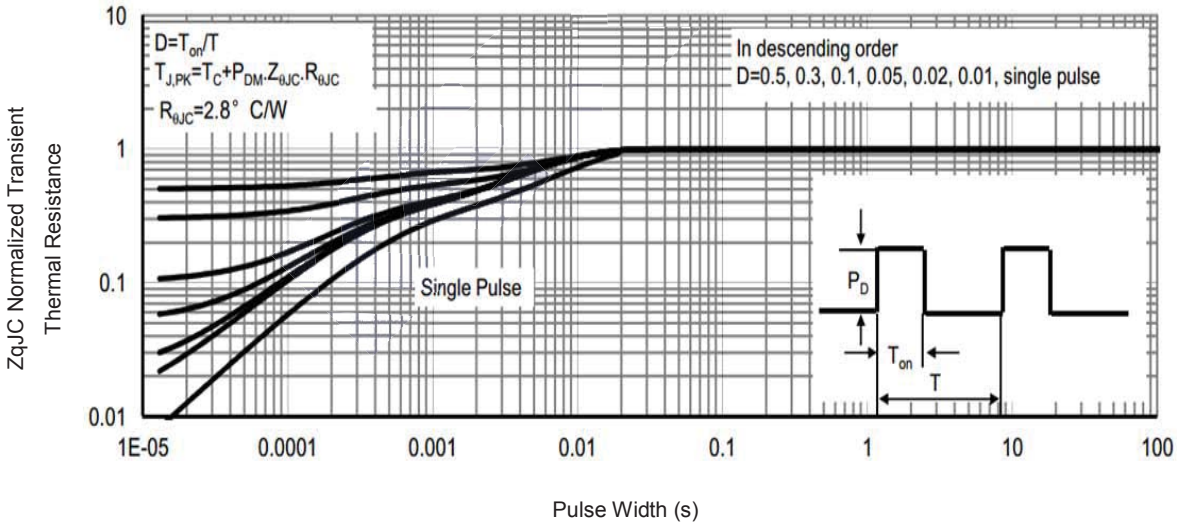


Fig9. Normalized Maximum Transient Thermal Impedance

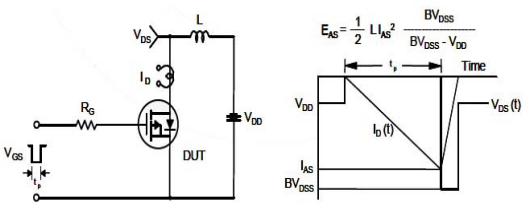


Fig10. Unclamped Inductive Test Circuit and Waveforms

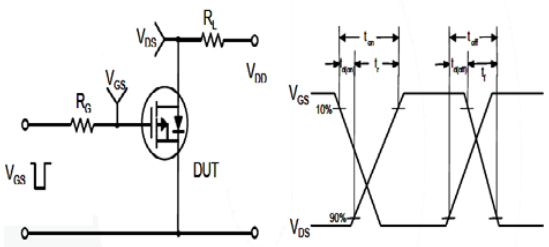


Fig11. Switching Time Test Circuit and waveforms