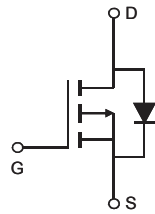
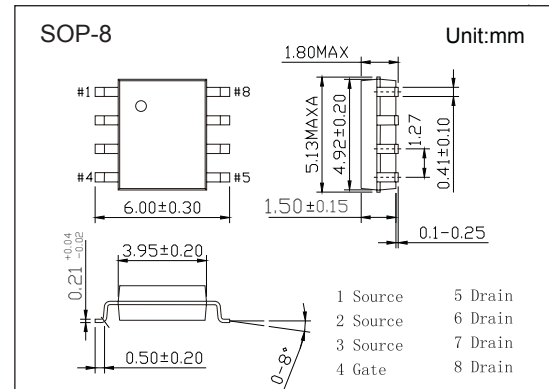


## P-channel MOSFET

## 2KJ7117

## ■ Features

- $V_{DS} = -30V$
- $I_D = -20 A$
- $R_{DS(on)} < 4.6m\Omega @ V_{GS} = -10V$
- $R_{DS(on)} < 6.8m\Omega @ V_{GS} = -4.5V$

■ Absolute Maximum Ratings ( $T_A = 25^\circ C$  unless otherwise noted)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	-30	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	
Continuous Drain Current	$I_D$	-20	A
Pulsed Drain Current (Note 1)	$I_{DM}$	-160	
Single Pulse Avalanche Energy	EAS	630	mJ
Avalanche Current (Note 1)	$I_{AR}$	-16	A
Maximum Power Dissipation	$P_D$	2.5	W
Thermal Resistance, Junction- to-Ambient (Note 3)	$R_{\theta JA}$	50	$^\circ C/W$
Junction Temperature	$T_J$	150	$^\circ C$
Junction Storage Temperature Range	$T_{stg}$	-55 to 150	

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Starting  $T_J = 25^\circ C$ ,  $L = 4.9mH$ ,  $R_G = 25\Omega$ ,  $I_{AS} = -16A$ .
3. Surface Mounted on FR4 Board,  $t \leq 10$  sec.

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■ Electrical Characteristics (T<sub>A</sub> = 25°C unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V <sub>DSS</sub>	I <sub>D</sub> =-250μA, V <sub>GS</sub> =0V	-30			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-24V, V <sub>GS</sub> =0V			-1	μA
Gate-Body Leakage Current	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =±20V			±100	nA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250μA	-1.3		-2.4	V
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =-10V, I <sub>D</sub> =-20A		3.9	4.6	mΩ
		V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-16A		5.8	6.8	
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> =-10V, I <sub>D</sub> =-16A	39			S
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =-15V, f=1MHz		5250		pF
Output Capacitance	C <sub>oss</sub>			1300		
Reverse Transfer Capacitance	C <sub>rss</sub>			880		
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>DS</sub> =-15V, I <sub>D</sub> = 1A, V <sub>GS</sub> = -4.5 V, R <sub>G</sub> = 1.8 Ω		25		ns
Turn-On Rise Time	t <sub>r</sub>			47		
Turn-Off Delay Time	t <sub>d(off)</sub>			65		
Turn-Off Fall Time	t <sub>f</sub>			70		
Total Gate Charge (Note 1)	Q <sub>g</sub>	V <sub>DS</sub> =-15V, I <sub>D</sub> =-16A, V <sub>GS</sub> = -10V		110	165	nC
Gate Source Charge (Note 1)	Q <sub>gs</sub>			17		
Gate Drain Charge (Note 1)	Q <sub>gd</sub>			28		
Diode Forward Voltage	V <sub>SD</sub>	I <sub>SD</sub> =-2.5 A, V <sub>GS</sub> =0V			-1.2	V
Diode Forward Current	I <sub>S</sub>				-2.5	A

Notes:

1. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2%.

## ■ Marking

Marking	J7117 KC****
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2KJ7117

■ Typical Characteristics

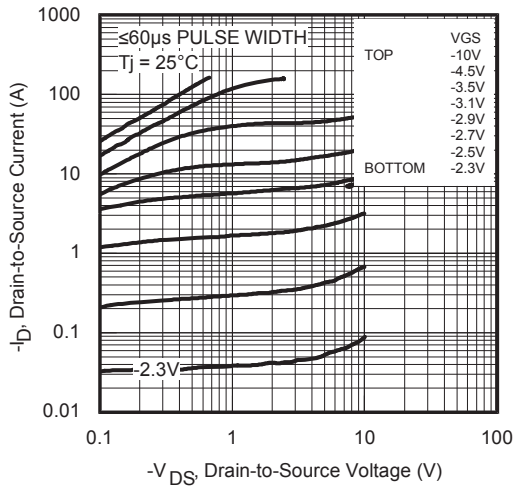


Fig 1. Typical Output Characteristics

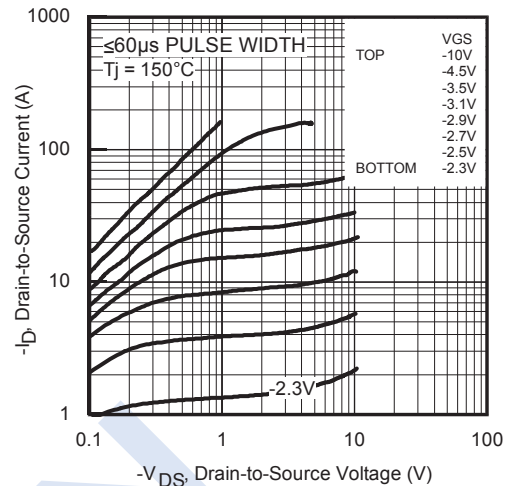


Fig 2. Typical Output Characteristics

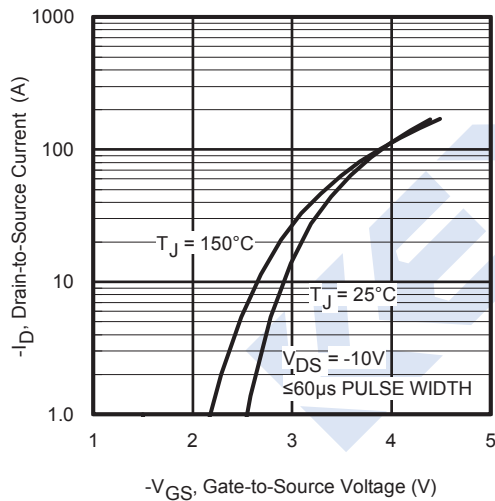


Fig 3. Typical Transfer Characteristics

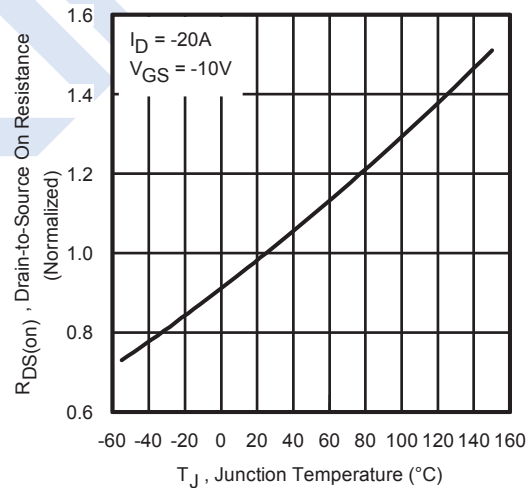


Fig 4. Normalized On-Resistance vs. Temperature

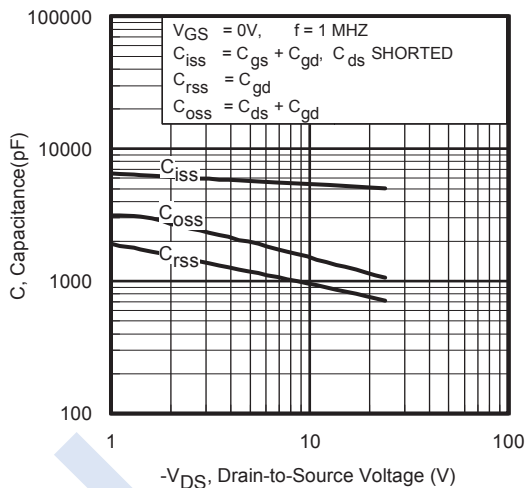


Fig 5. Typical Capacitance vs. Drain-to-Source Voltage

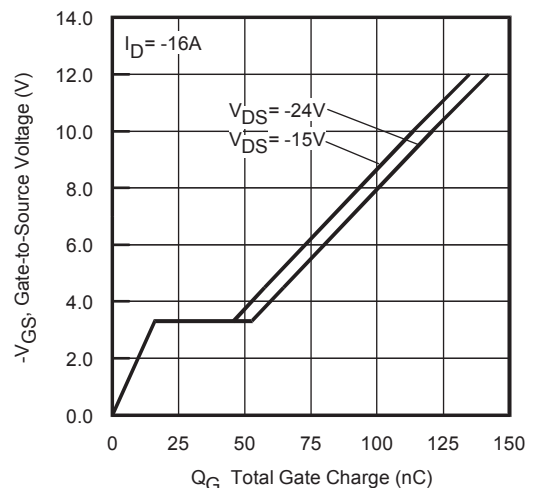


Fig 6. Typical Gate Charge vs. Gate-to-Source Voltage

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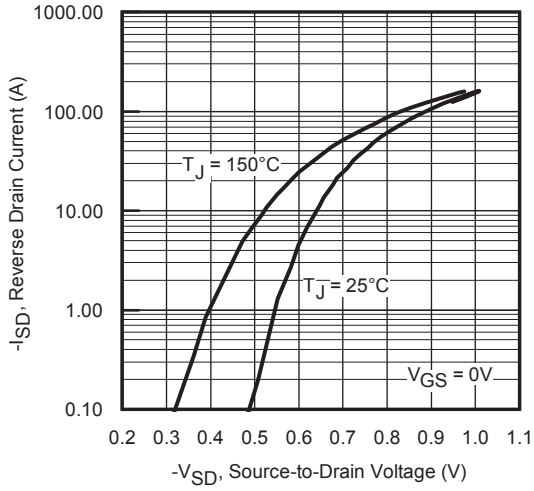


Fig 7. Typical Source-Drain Diode Forward Voltage

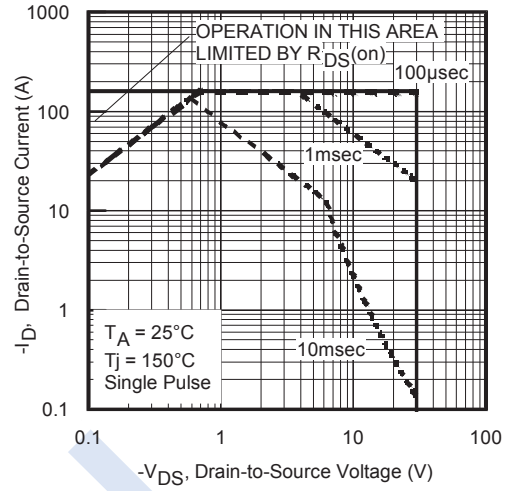


Fig 8. Maximum Safe Operating Area

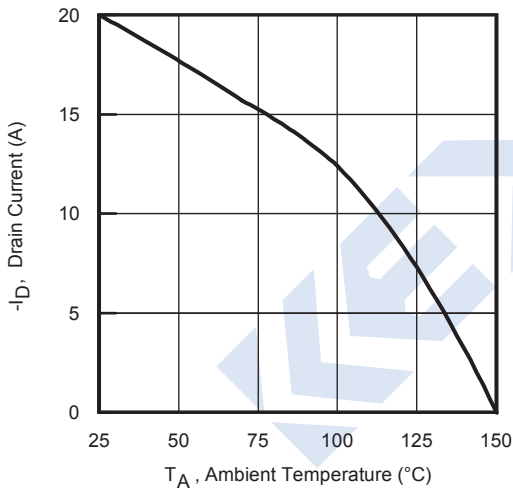


Fig 9. Maximum Drain Current vs. Ambient Temperature

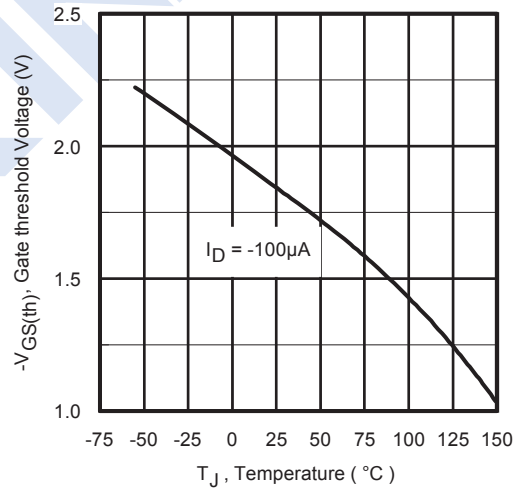


Fig 10. Threshold Voltage vs. Temperature

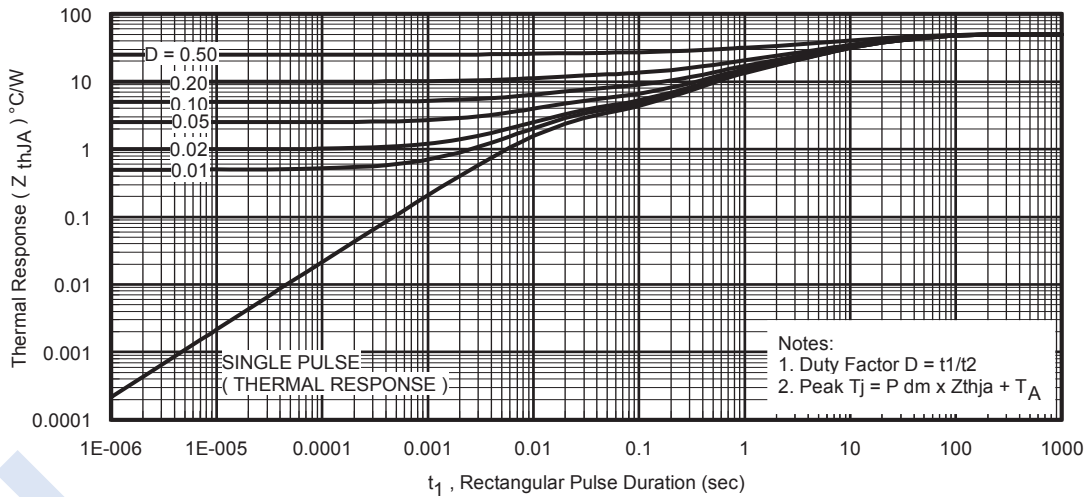


Fig 11. Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

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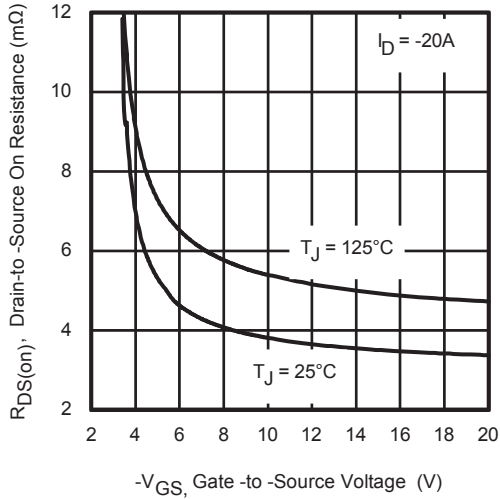


Fig 12. On-Resistance vs. Gate Voltage

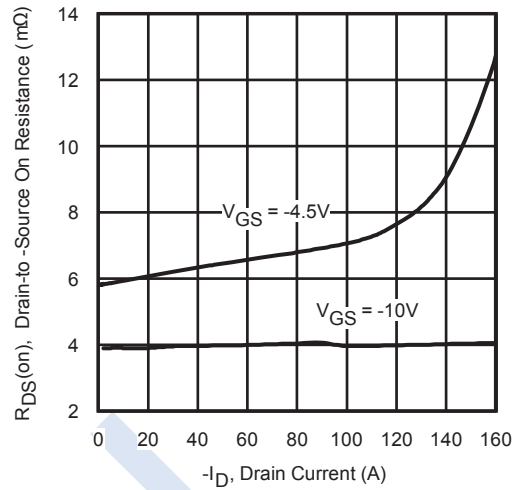


Fig 13. Typical On-Resistance vs. Drain Current

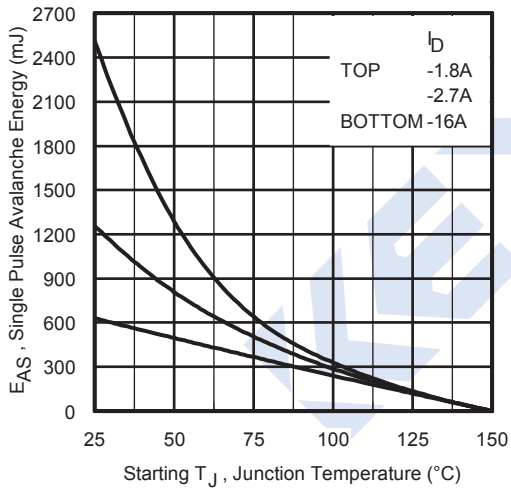


Fig 14. Maximum Avalanche Energy vs. Drain Current

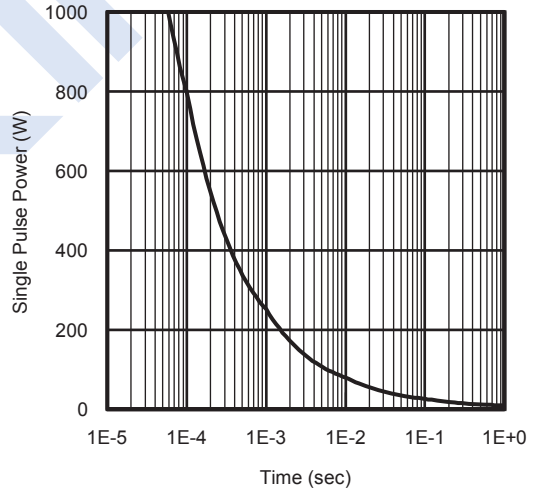


Fig 16. Typical Power vs. Time