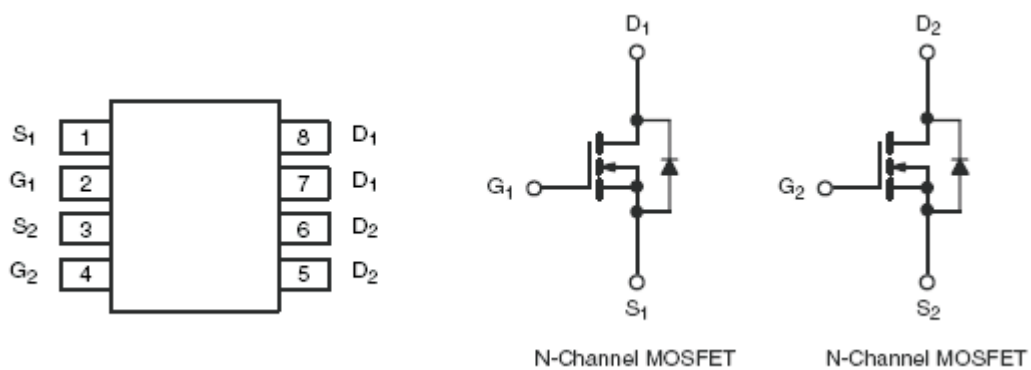


1. Features

- n 6A.20V, $r_{DS(on)}=0.030 \Omega$ @ $V_{GS}=4.5V$
- n 5.2A. 20V. $r_{DS(on)}=0.040\Omega$ @ $V_{GS}=2.5V$

2.Symbol



3.Absolute maximum ratings

($T_A=25^\circ C$, unless otherwise noted)

Parameter	Symbol	10 secs		Steady state	Units
Drain-source voltage	V_{DSS}	20			V
Gate-source voltage	V_{GS}	± 10			V
Continuous drain current	I_D	6			A
Pulsed drain current	I_{DM}	30			A
Maximum power dissipation	P_D	$T_A=25^\circ C$	2.0	1.25	W
		$T_A=70^\circ C$	1.3	0.8	

4.Thermal resistance ratings

Parameter		Symbol	Typ	Max	Units
Maximum Junction to ambient*	$t \leq 10\text{sec}$	R_{thJA}	50	62.5	$^\circ C/W$
	Steady state		80	100	
Maximum Junction to foot(drain)	Steady state	R_{thJF}	30	40	

*Surface Mounted on 1`x1`FR4 Board.

5. Electrical characteristics

(Ta=25°C, unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Drain-Source breakdown voltage	V_{DSS}	$V_{GS}=0V, I_D=250\mu A$	20	-	-	V
Zero gate voltage drain current	I_{DSS}	$V_{DS}=16V, V_{GS}=0V$	-	-	1	μA
			-	-	-	
Gate-body leakage	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 10v$	-	-	± 100	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.5	-	1.0	V
Drain-source on-state resistance*	$r_{DS(on)}$	$V_{GS}=4.5V, I_D=6A$	-	0.025	0.030	Ω
		$V_{GS}=2.5V, I_D=5.2A$	-	0.040	0.045	
On-state drain current*	$I_{d(on)}$	$V_{DS} \geq 5V, V_{GS}=4.5A$	20	-	-	A
Forward transconductance*	g_{fs}	$V_{DS}=15V, I_D=6V$	-	22	-	S
Total gate charge	Q_g	$V_{DS}=15V, V_{GS}=4.5V, I_D=6A$	-	13	20	nC
Gate-source charge	Q_{gs}		-	3	-	
Gate-drain charge	Q_{gd}		-	3.3	-	
Turn-on delay time	$t_{d(on)}$	$V_{DD}=15V$ $I_D=1A, V_{GS}=4.5V, R_G=6\Omega$ $, R_L=15\Omega$	-	2	35	ns
Rise time	t_r		-	40	60	
Turn-off delay time	$t_d(off)$		-	50	75	
Fall time	t_f		-	20	30	
Maximum continuous drain-source diode forward current	I_s		-	-	1	A
Diode forward voltage*	V_{SD}	$I_s=1.7A, V_{GS}=0V$	-	0.7	1.2	V

*Pulse test; pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$

6. Test circuits and waveforms

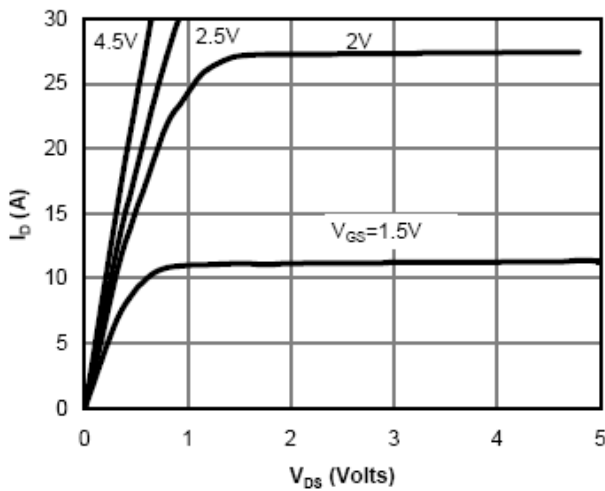


Fig 1: On-Region Characteristics

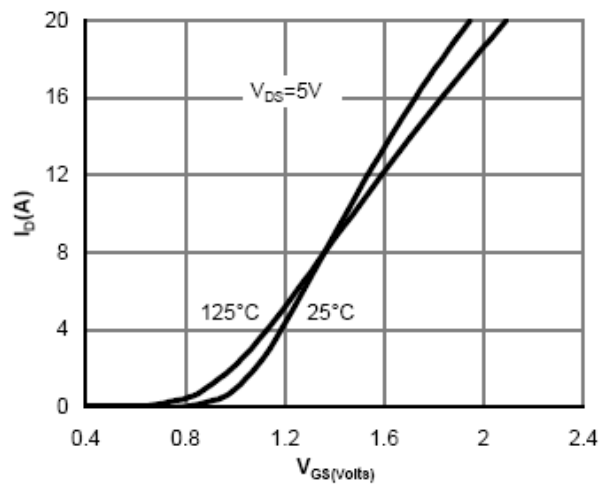


Figure 2: Transfer Characteristics

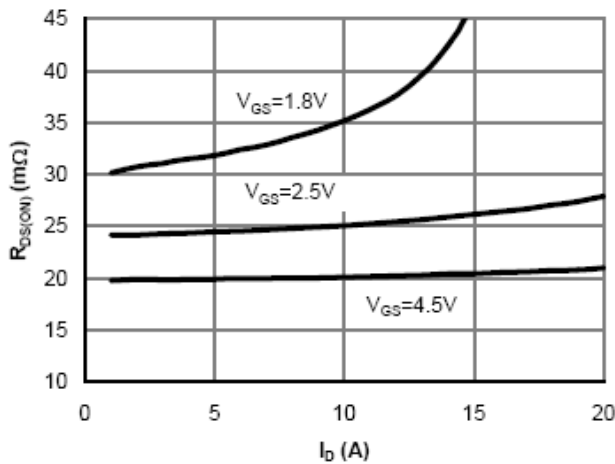


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

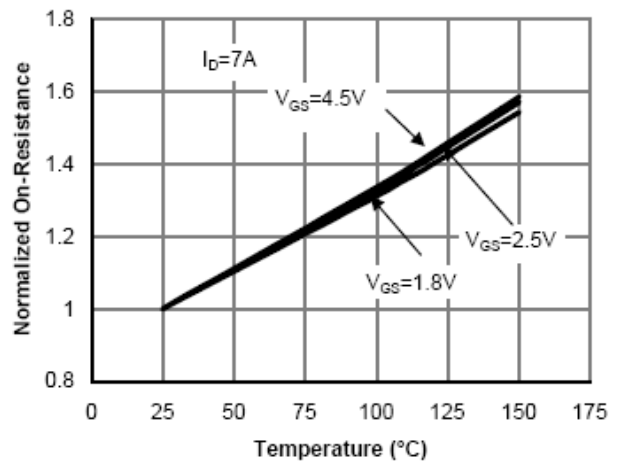


Figure 4: On-Resistance vs. Junction Temperature

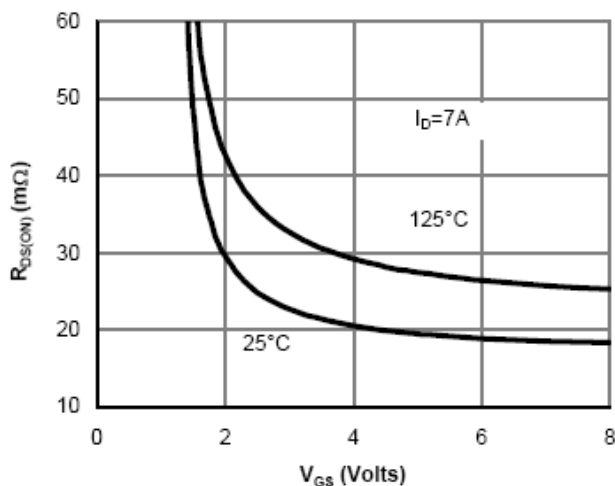


Figure 5: On-Resistance vs. Gate-Source Voltage

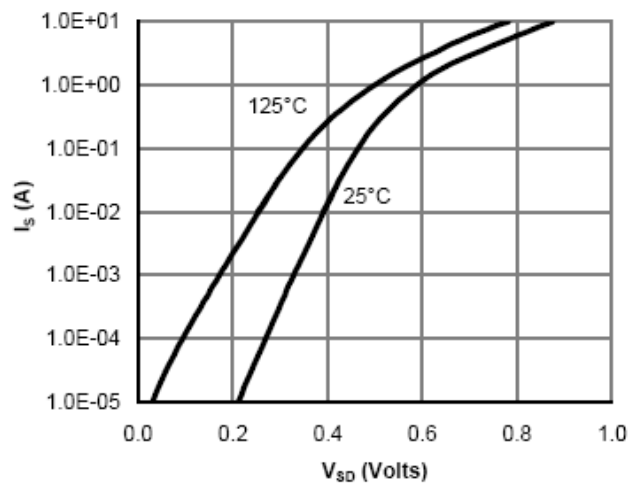


Figure 6: Body-Diode Characteristics

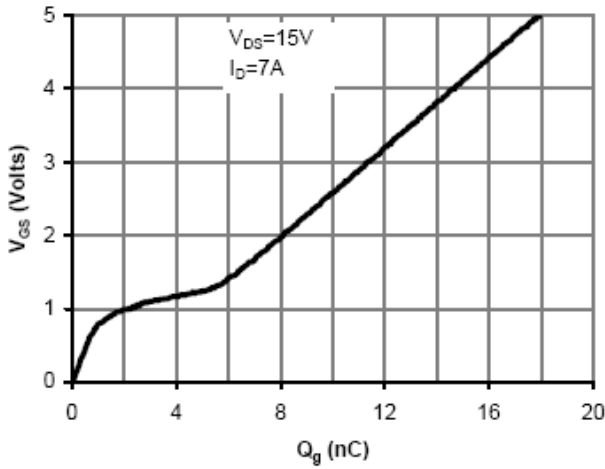


Figure 7: Gate-Charge Characteristics

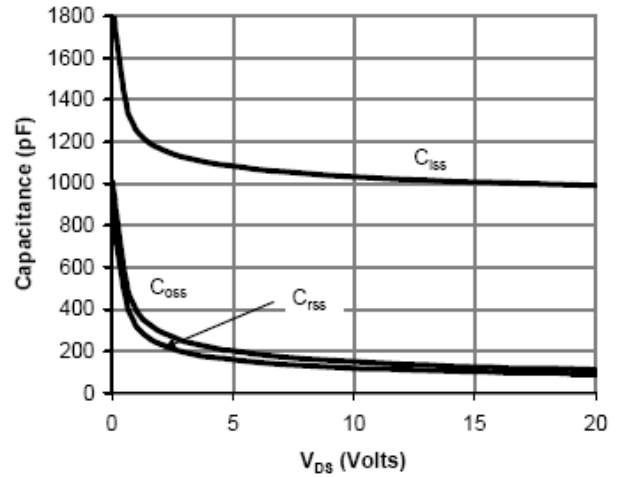


Figure 8: Capacitance Characteristics

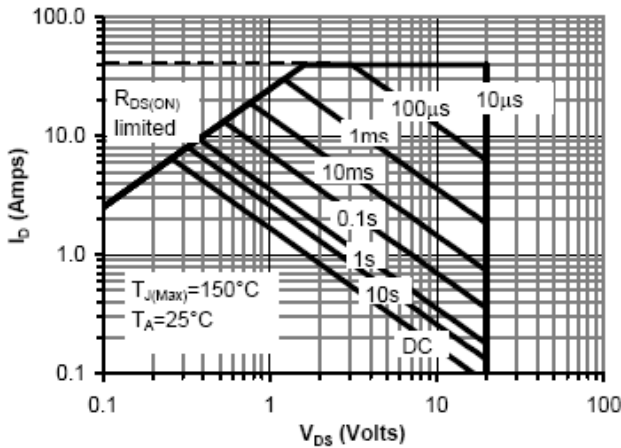


Figure 9: Maximum Forward Biased Safe Operating Area (Note E)

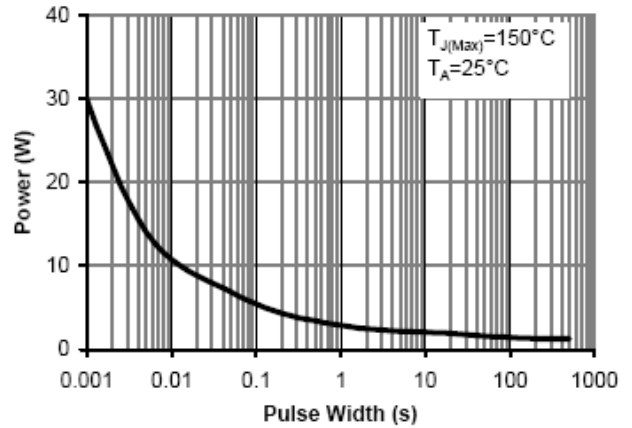


Figure 10: Single Pulse Power Rating Junction-to-Ambient (Note E)

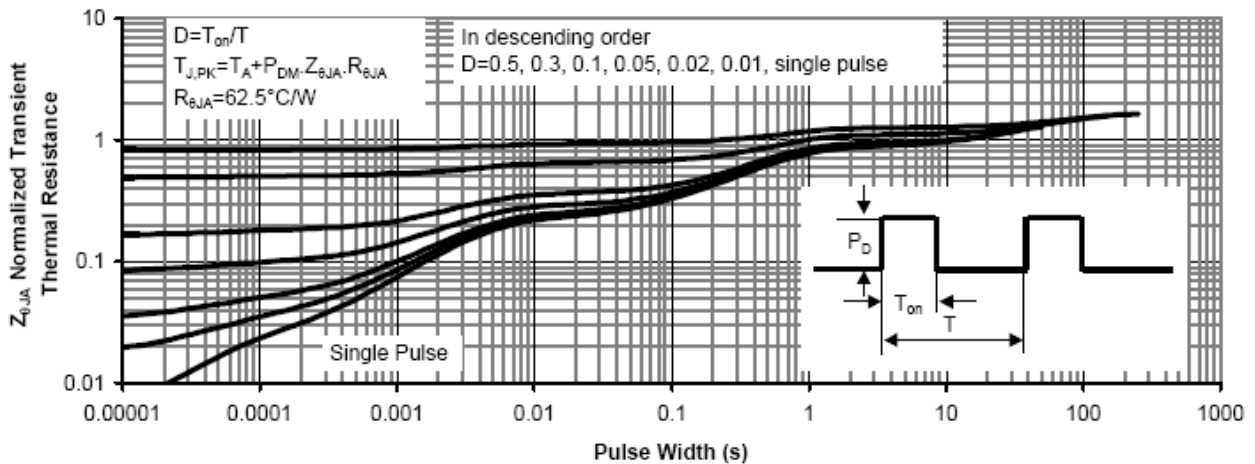


Figure 11: Normalized Maximum Transient Thermal Impedance