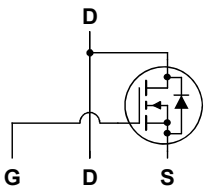
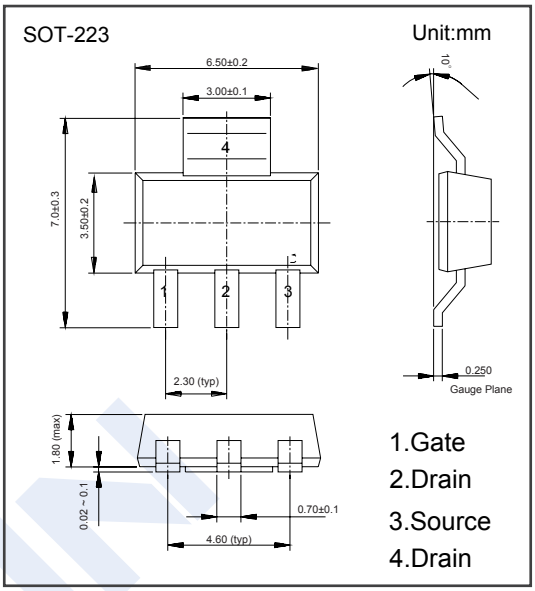
N-Channel Enhancement MOSFET

FDT86244

■ Features

- $V_{DS\ (V)}$ = 150V
- I_D = 2.8 A (V_{GS} = 10V)
- $R_{DS(ON)}$ < 285mΩ (V_{GS} = 10V)
- $R_{DS(ON)}$ < 305mΩ (V_{GS} = 6V)





■ Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	150	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current	Ta=25℃ (Note.1)	I_D	2.8	A
			12	
Power Dissipation	Ta=25℃ (Note.1)	P_D	2.2	W
	Ta=25℃ (Note.2)		1.0	
Single Pulsed Avalanche Energy (Note.3)		E_{AS}	12	mJ
Thermal Resistance.Junction- to-Ambient		R_{thJA}	55	℃/W
Thermal Resistance.Junction- to-Case		R_{thJC}	12	
Junction Temperature		T_J	150	℃
Storage Temperature Range		T_{stg}	-55 to 150	

Note1: 55 °C/W when mounted on a 1 in 2 pad of 2 oz copper
Note2: 118 °C/W when mounted on a minimum pad of 2 oz copper
Note3: Starting T_J = 25 °C; N-ch: L = 1 mH, I_{AS} = 5 A, V_{DD} = 135 V, V_{GS} = 10 V.

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■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	I_D=250μA, V_{GS}=0V	150			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=120V, V_{GS}=0V			1	μA
Gate-Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} , I_D=250μA	2.0	3.1	4.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=2.8A			285	mΩ
		V_{GS}=6V, I_D=2.4A			305	
		V_{GS}=10V, I_D=2.8A ,Tj = 125℃			320	
Forward Transconductance	g_{FS}	V_{DS}=10V, I_D=2.8A		4		S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=75V, f=1MHz		295	395	pF
Output Capacitance	C_{oss}			33	45	
Reverse Transfer Capacitance	C_{rss}			2.4	5	
Gate Resistance	R_g			1		Ω
Total Gate Charge	Q_g	V_{GS}=0 to 10V, V_{DS}=75V, I_D=2.8A		4.9	7	nC
		V_{GS}=0 to 5V, V_{DS}=75V, I_D=2.8A		2.8	4	
Gate Source Charge	Q_{gs}	V_{DS}=75V, I_D=2.8A		1.4		
Gate Drain Charge	Q_{gd}			1.3		
Turn-On DelayTime	$t_{d(on)}$	I_D=2.8A, V_{DS}=75V, ,R_{GEN}=6Ω,V_{DS}=10V		5.3	11	ns
Turn-On Rise Time	t_r			1.3	10	
Turn-Off DelayTime	$t_{d(off)}$			9.8	20	
Turn-Off Fall Time	t_f			2.4	10	
Body Diode Reverse Recovery Time	t_{rr}	I_F= 2.8A, dI/dt= 100A/μs V_{GS}=0V		48	77	
Body Diode Reverse Recovery Charge	Q_{rr}			44	70	uC
Maximum Body-Diode Continuous Current	I_S				2.8	A
Diode Forward Voltage	V_{SD}	I_S=2.8A,V_{GS}=0V (Note.1)		0.82	1.3	V

Note.1: .Pulse Test:Pulse width≤300us,Duty cycle≤2%

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■ Typical Characterisitics

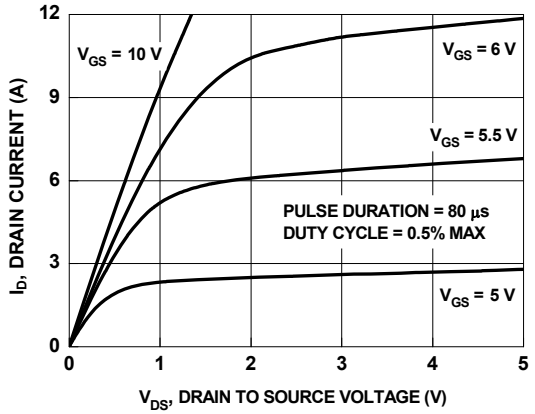

Figure 1. On Region Characteristics

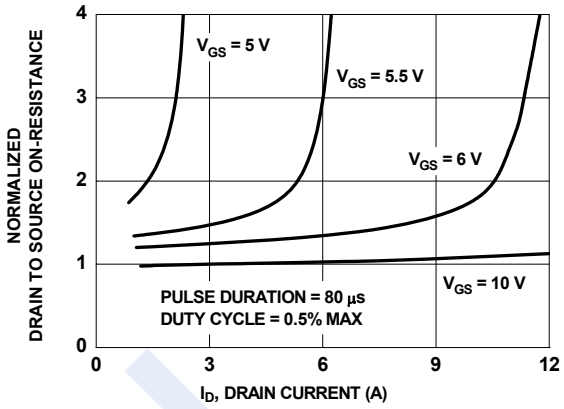

Figure 2. Normalized On-Resistance vs Drain Current and Gate Voltage

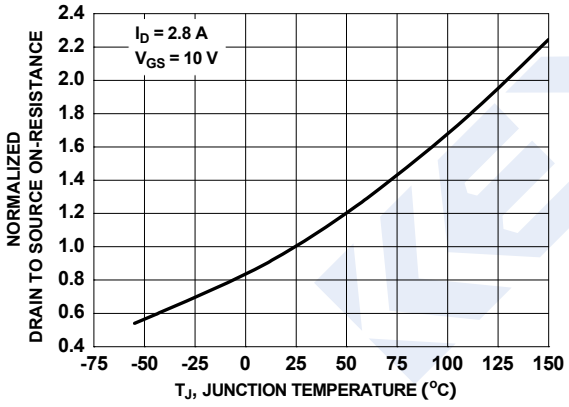

Figure 3. Normalized On Resistance vs Junction Temperature

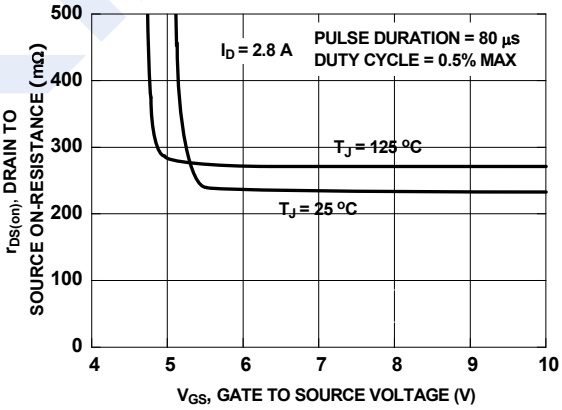

Figure 4. On-Resistance vs Gate to Source Voltage

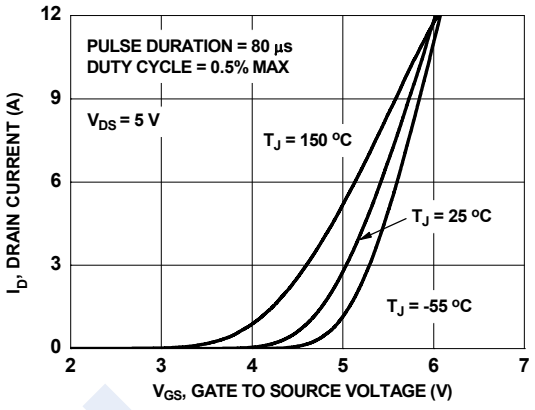

Figure 5. Transfer Characteristics

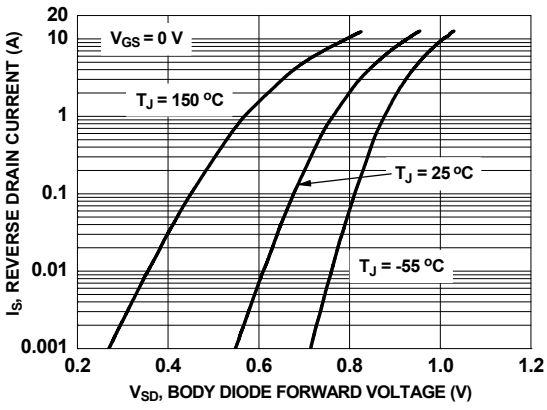

Figure 6. Source to Drain Diode Forward Voltage vs Source Current

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■ Typical Characterisitics

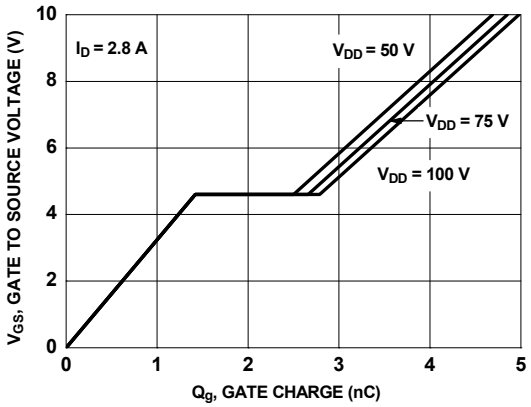


Figure 7. Gate Charge Characteristics

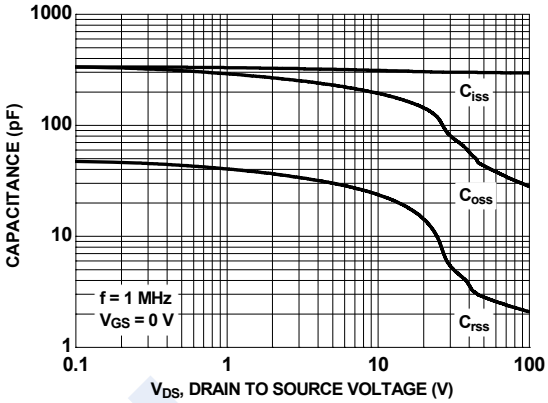


Figure 8. Capacitance vs Drain to Source Voltage

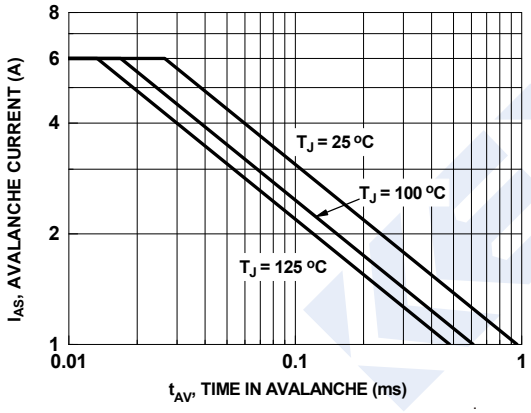


Figure 9. Unclamped Inductive Switching Capability

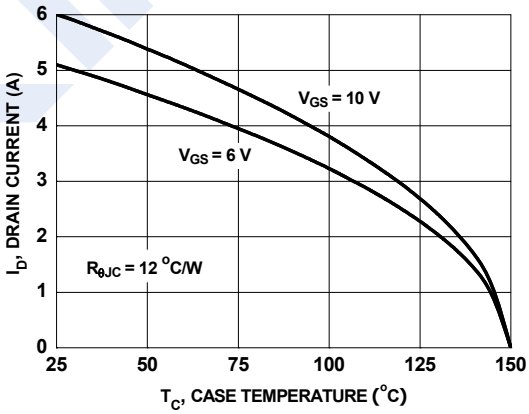
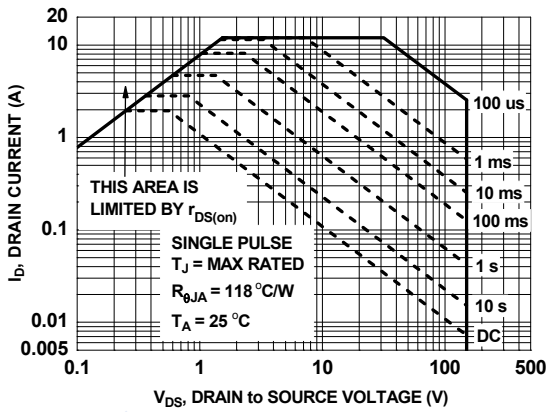


Figure 10. Current vs Case Temperature



Operating Area

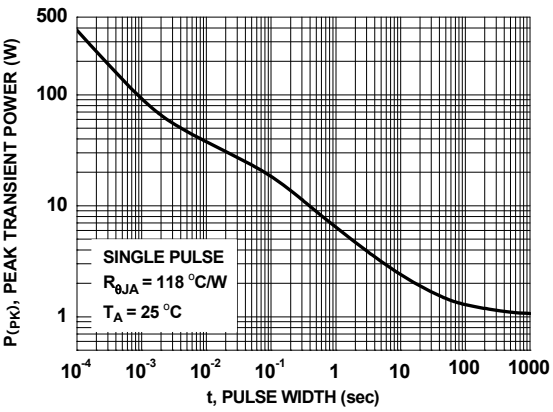


Figure 12. Single Pulse Maximum Power Dissipation

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■ Typical Characterisitics

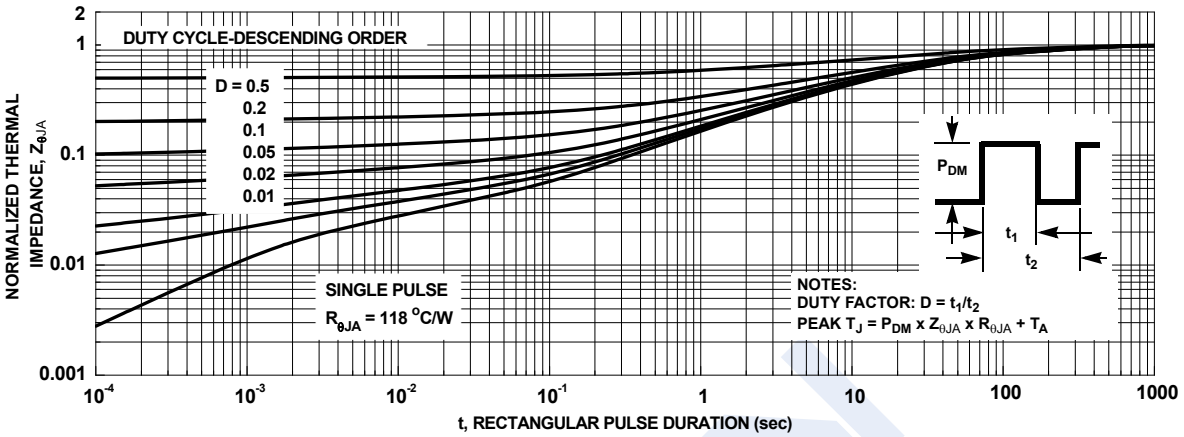

Figure 13. Junction-to-Ambient Transient Thermal Response Curve