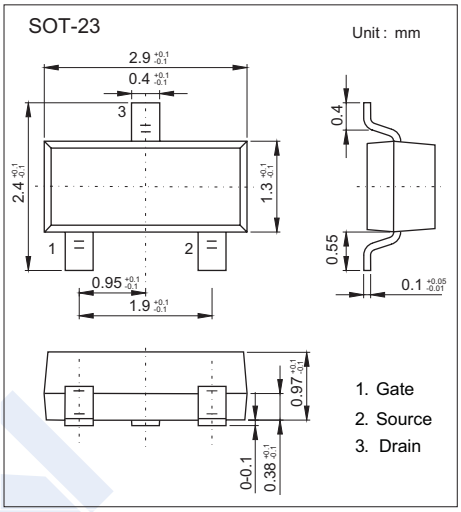
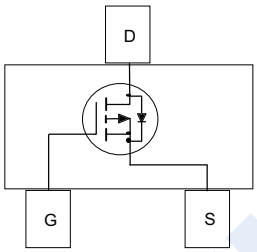
P-Channel MOSFET

FDN360P (KDN360P)



■ Features

- V_{DS} (V) = -30 V
- I_D = -2 A
- $R_{DS(ON)}$ = 0.080 Ω @ V_{GS} = -10 V
- $R_{DS(ON)}$ = 0.125 Ω @ V_{GS} = -4.5 V



■ 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		I_D	-2	A
Pulsed Drain Current		I_{DM}	-20	
Power Dissipation	(Note 1a)	P_D	0.5	W
	(Note 1b)		0.46	
Thermal Resistance.Junction- to-Ambient	(Note 1a)	R_{thJA}	250	℃/W
Thermal Resistance.Junction- to-Case	(Note 1)	R_{thJC}	75	
Junction Temperature		T_J	150	℃
Storage Temperature Range		T_{stg}	-55 to 150	

Notes:

1. $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins. $R_{\theta JC}$ is guaranteed by design while $R_{\theta CA}$ is determined by the user's board design.

a. 250℃/W when mounted on a 0.02 in^2 pad of 2oz Cu.

c. 270℃/W when mounted on a 0.001in^2 pad of 2oz Cu.

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■ Electrical Characteristics T_A = 25℃ unless otherwise noted

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	I_D= -250 μA, V_{GS}=0V	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}= -24V, 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= -250 μA	-1		-3	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}= -10V, I_D= -2 A			80	mΩ
		V_{GS}= -10V, I_D= -2 A , T_J=125℃			136	
		V_{GS}= -4.5V, I_D= -1.5 A			125	
On State Drain Current	$I_{D(ON)}$	V_{GS}= -10 V, V_{DS}= -5 V	-20			A
Forward Transconductance	g_{FS}	V_{DS}= -5 V, I_D= -2 A		5.5		S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}= -15 V, f=1MHz		420		pF
Output Capacitance	C_{oss}			140		
Reverse Transfer Capacitance	C_{rss}			60		
Total Gate Charge	Q_g	V_{GS}= -10 V, V_{DS}= -15 V, I_D= -2 A		5	7	nC
Gate Source Charge	Q_{gs}			1.7		
Gate Drain Charge	Q_{gd}			1.8		
Turn-On DelayTime	$t_{d(on)}$	V_{GS}= -10 V, V_{DD}= -15 V, I_D = -1A,R_{GEN}=6Ω		9	18	ns
Turn-On Rise Time	t_r			8	16	
Turn-Off DelayTime	$t_{d(off)}$			18	29	
Turn-Off Fall Time	t_f			6	12	
Maximum Body-Diode Continuous Current	I_S				-0.42	A
Diode Forward Voltage	V_{SD}	I_S= -0.42 A,V_{GS}=0V (Note 2)			-1.2	V

Note 2: Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2.0%

■ Marking

Marking	360

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■ Typical Characterisitics

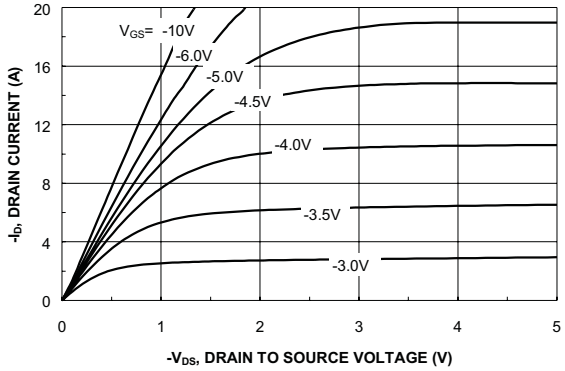

Figure 1. On-Region Characteristics.

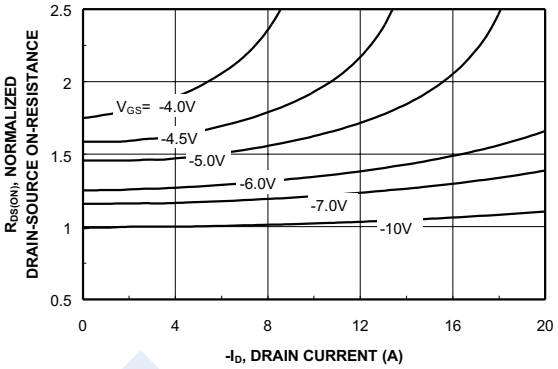

Figure 2. On-Resistance Variation with Drain Current and Gate Voltage.

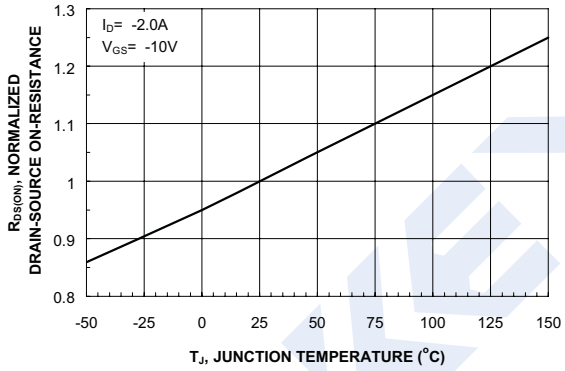

Figure 3. On-Resistance Variation with Temperature.

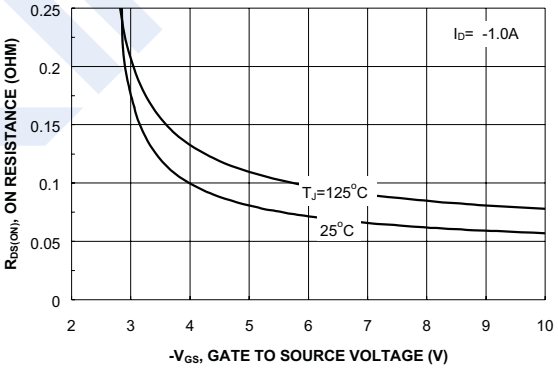

Figure 4. On-Resistance Variation with Gate-to-Source Voltage.

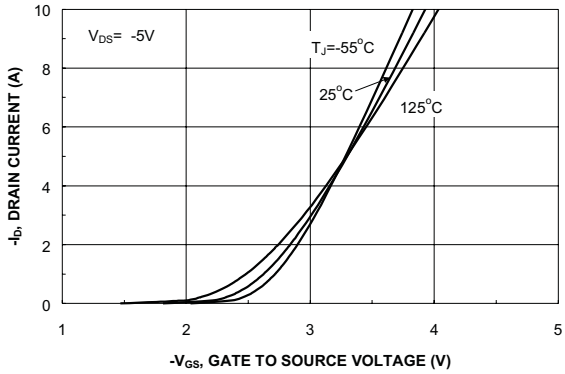

Figure 5. Transfer Characteristics.

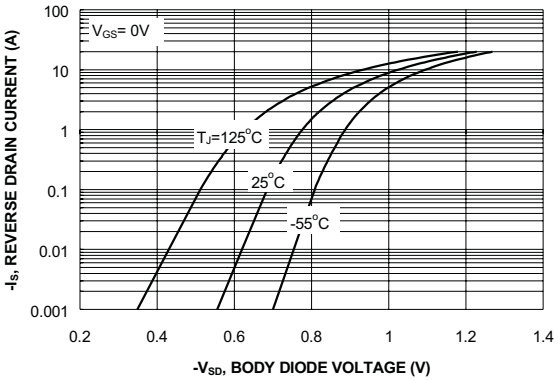

Figure 6. Body Diode Forward Voltage Variation with Source Current and Temperature.

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■ Typical Characterisitics

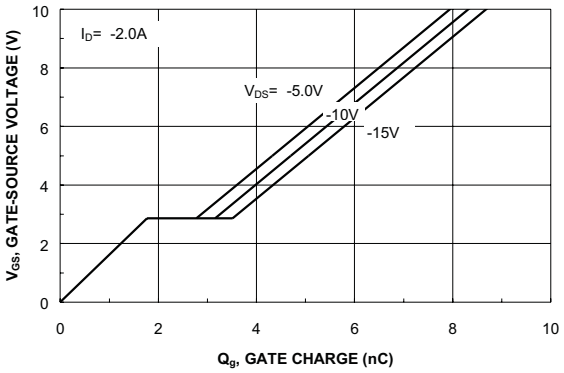

Figure 7. Gate Charge Characteristics.

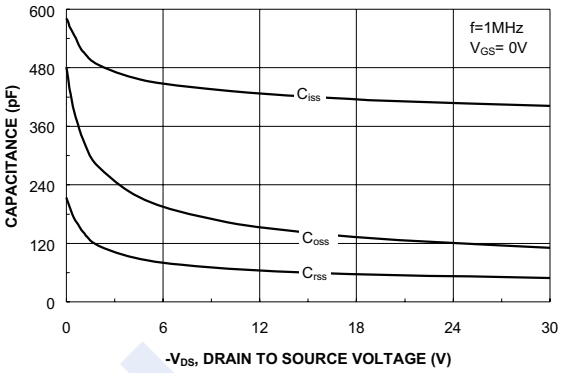

Figure 8. Capacitance Characteristics.

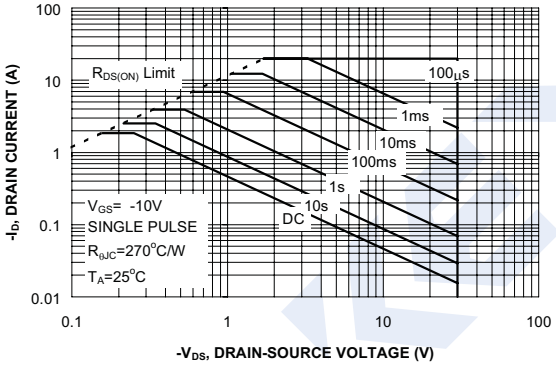

Figure 9. Maximum Safe Operating Area.

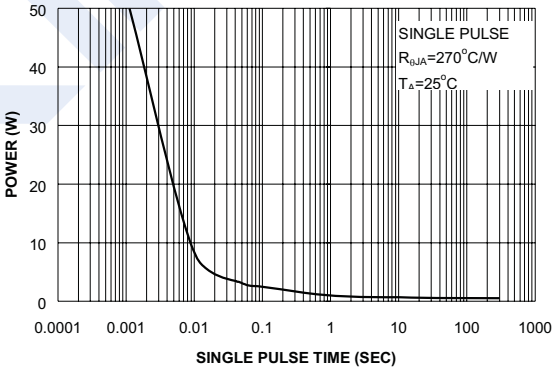

Figure 10. Single Pulse Maximum Power Dissipation.

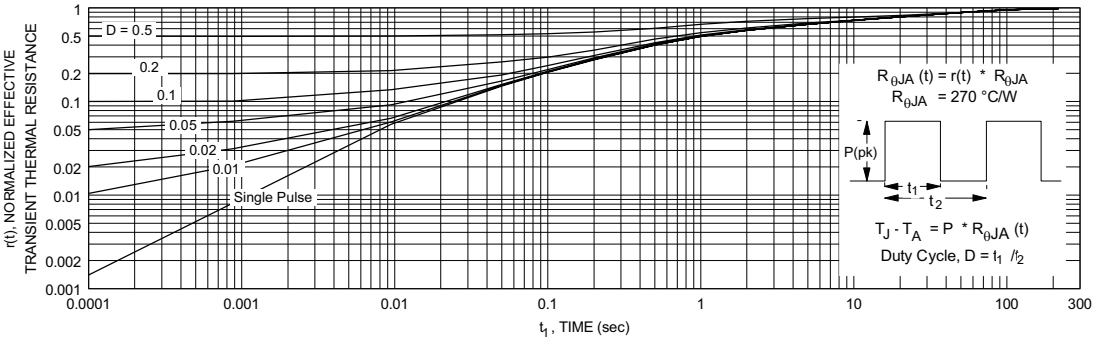

Figure 11. Transient Thermal Response Curve.

Thermal characterization performed using the conditions described in Note 1b.
Transient themal response will change depending on the circuit board design.