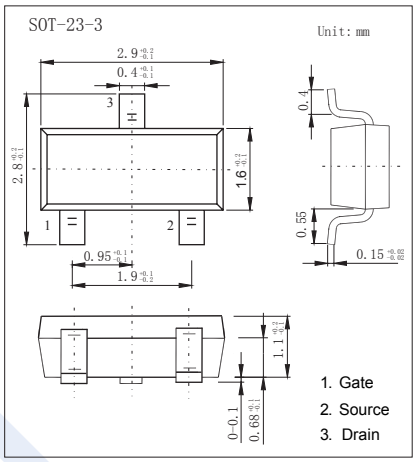
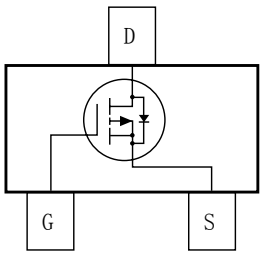
P-Channel MOSFET

FDN352AP (KDN352AP)



■ Features

- $V_{DS\ (V)}$ =-30V
- I_D =-1.3 A (V_{GS} =-10V)
- $R_{DS(ON)}$ < 180mΩ (V_{GS} =-10V)
- $R_{DS(ON)}$ < 300mΩ (V_{GS} =-4.5V)



■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±25	
Continuous Drain Current	I_D	-1.3	A
Pulsed Drain Current	I_{DM}	-10	
Power Dissipation (Note.1)	P_D	0.5	W
(Note.2)		0.46	
Thermal Resistance.Junction- to-Ambient	R_{thJA}	250	℃/W
Thermal Resistance.Junction- to-Case	R_{thJC}	75	
Junction Temperature	T_J	150	℃
Junction Storage Temperature Range	T_{stg}	-55 to 150	

Note.1: $R_{\theta JA}$= 250°C/W when mounted on a 0.02 in² pad of 2oz. copper.

Note.2: $R_{\theta JA}$= 270°C/W when mounted on a 0.001 in² pad of 2oz. copper.

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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	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-24V, V_{GS}=0V			-1	uA
Gate-Body leakage current	I_{GSS}	V_{DS}=0V, V_{GS}=±25V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=-250μA (Note.1)	-0.8		-2.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-1.3A (Note.1)			180	mΩ
		V_{GS}=-4.5V, I_D=-1.1A (Note.1)			300	
		V_{GS}=-4.5V, I_D=-1.1A,T_J=125℃ (Note.1)			400	
Forward Transconductance	g_{FS}	V_{DS}=-5V, I_D=-0.9A		2		S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=-15V, f=1MHz		150		pF
Output Capacitance	C_{oss}			40		
Reverse Transfer Capacitance	C_{rss}			20		
Total Gate Charge	Q_g	V_{GS}=-4.5V, V_{DS}=-10V, I_D=-0.9A (Note.1)		1.4	1.9	nC
Gate Source Charge	Q_{gs}			0.5		
Gate Drain Charge	Q_{gd}			0.5		
Turn-On DelayTime	$t_{d(on)}$	V_{GS}=-10V, V_{DS}=-10V, I_D=-1A,R_G=6Ω (Note.1)			8	ns
Turn-On Rise Time	t_r				28	
Turn-Off DelayTime	$t_{d(off)}$				18	
Turn-Off Fall Time	t_f				2	
Body Diode Reverse Recovery Time	t_{rr}	I_F=-3.9A, dI/dt=100A/μs		17		
Body Diode Reverse Recovery Charge	Q_{rr}			7		nC
Maximum Body-Diode Continuous Current	I_S				-0.42	A
Diode Forward Voltage	V_{SD}	I_S=-0.42A,V_{GS}=0V (Note.1)			-1.2	V

Note.1:Pulse Test: Pulse Width < 300 μs, Duty Cycle < 2.0%

■ Marking

Marking	52AP

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■ Typical Characterisitics

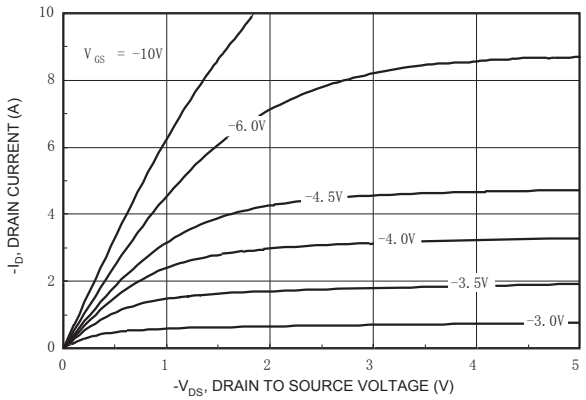

Figure 1. On-Region Characteristics.

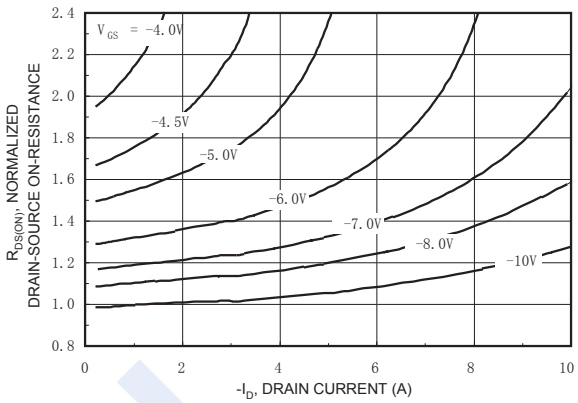

Figure 2. On-Resistance Variation with Drain Current and Gate Voltage.

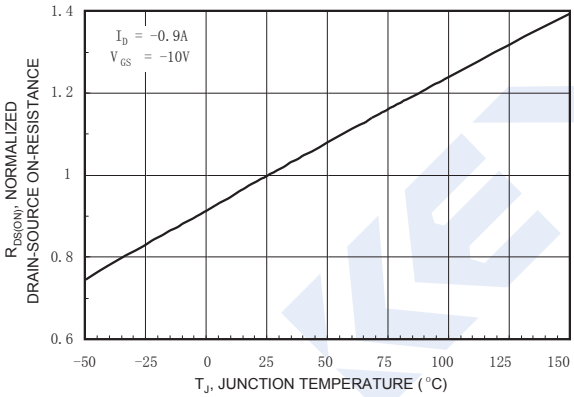

Figure 3. On-Resistance Variation with Temperature.

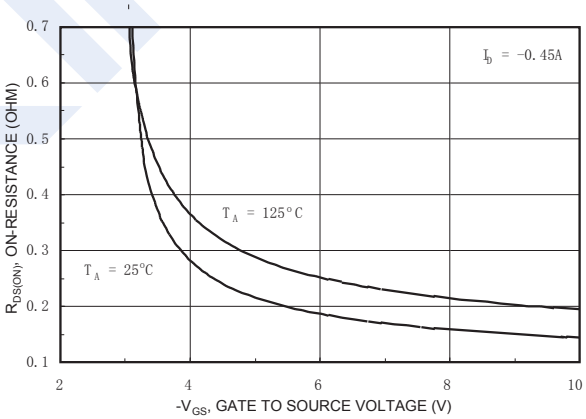

Figure 4. On-Resistance Variation with Gate-to-Source Voltage.

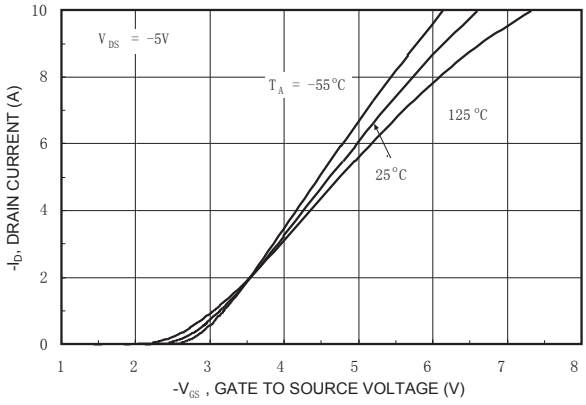

Figure 5. Transfer Characteristics.

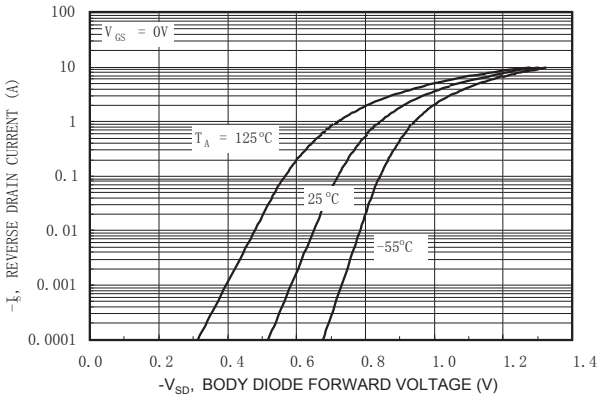

Figure 6. Body Diode Forward Voltage Variation with Source Current and Temperature.

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■ Typical Characterisitics

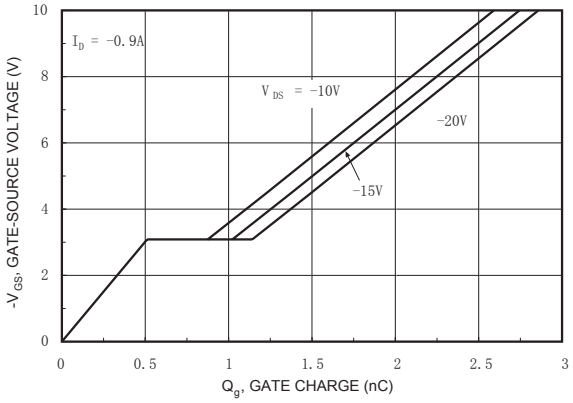

Figure 7. Gate Charge Characteristics.

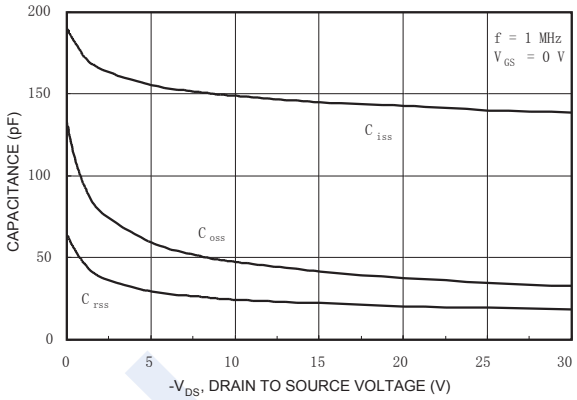

Figure 8. Capacitance Characteristics.

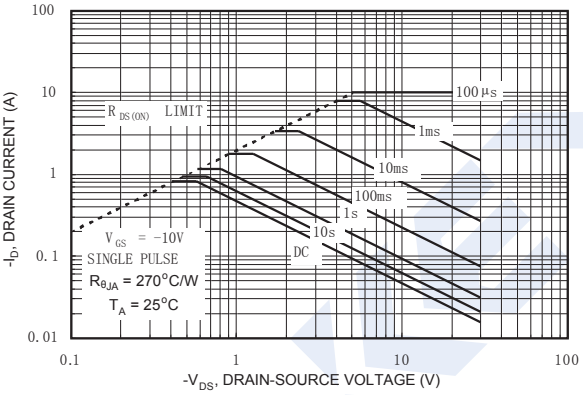

Figure 9. Maximum Safe Operating Area.

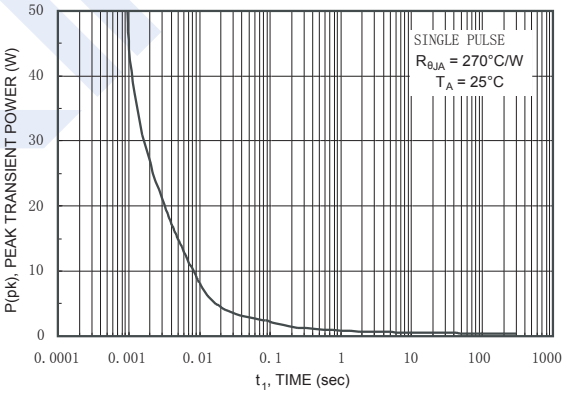

Figure 10. Single Pulse Maximum Power Dissipation.

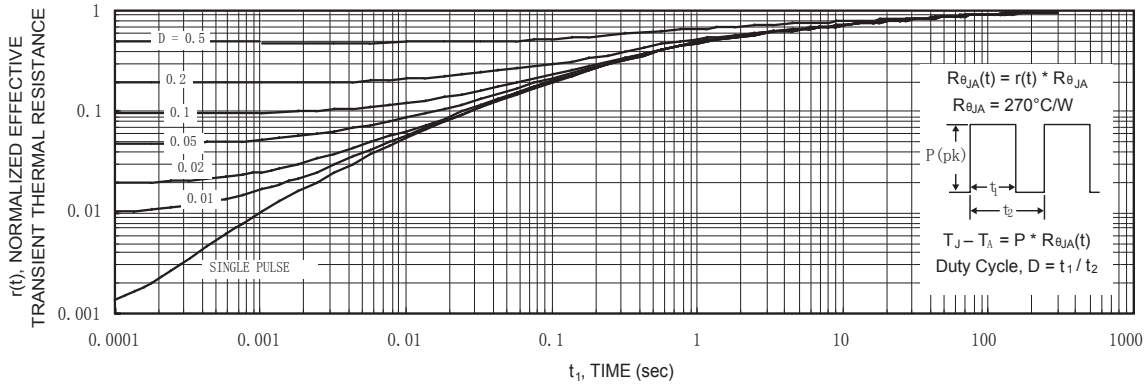

Figure 11. Transient Thermal Response Curve.