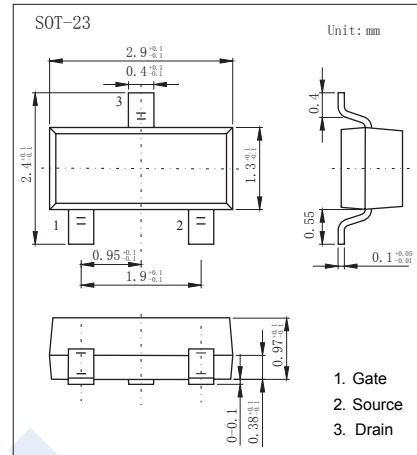
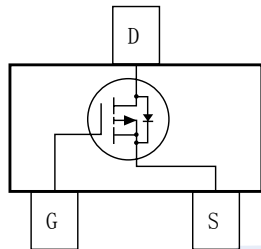


## P-Channel MOSFET

### FDN352AP-HF (KDN352AP-HF)

#### ■ Features

- $V_{DS} (V) = -30V$
- $I_D = -1.3 A (V_{GS} = -10V)$
- $R_{DS(ON)} < 180m\Omega (V_{GS} = -10V)$
- $R_{DS(ON)} < 300m\Omega (V_{GS} = -4.5V)$
- Pb-Free Package May be Available. The G-Suffix Denotes a Pb-Free Lead Finish



#### ■ Absolute Maximum Ratings $T_a = 25^\circ C$

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

Note.1:  $R_{\theta JA} = 250^\circ C/W$  when mounted on a 0.02 in<sup>2</sup> pad of 2oz. copper.

Note.2:  $R_{\theta JA} = 270^\circ C/W$  when mounted on a 0.001 in<sup>2</sup> pad of 2oz. copper.

## P-Channel MOSFET

### FDN352AP-HF (KDN352AP-HF)

#### ■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V <sub>BSS</sub>	I <sub>D</sub> =-250 μA, 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> =±25V			±100	nA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> I <sub>D</sub> =-250 μA (Note.1)	-0.8		-2.5	V
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =-10V, I <sub>D</sub> =-1.3A (Note.1)			180	mΩ
		V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-1.1A (Note.1)			300	
		V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-1.1A, T <sub>J</sub> =125°C (Note.1)			400	
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> =-5V, I <sub>D</sub> =-0.9A		2		S
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =-15V, f=1MHz		150		pF
Output Capacitance	C <sub>oss</sub>			40		
Reverse Transfer Capacitance	C <sub>rss</sub>			20		
Total Gate Charge	Q <sub>g</sub>	V <sub>GS</sub> =-4.5V, V <sub>DS</sub> =-10V, I <sub>D</sub> =-0.9A (Note.1)		1.4	1.9	nC
Gate Source Charge	Q <sub>gs</sub>			0.5		
Gate Drain Charge	Q <sub>gd</sub>			0.5		
Turn-On DelayTime	t <sub>d(on)</sub>	V <sub>GS</sub> =-10V, V <sub>DS</sub> =-10V, I <sub>D</sub> =-1A, R <sub>G</sub> =6Ω (Note.1)			8	ns
Turn-On Rise Time	t <sub>r</sub>				28	
Turn-Off DelayTime	t <sub>d(off)</sub>				18	
Turn-Off Fall Time	t <sub>f</sub>				2	
Body Diode Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> =-3.9A, di/dt=100A/μs		17		nC
Body Diode Reverse Recovery Charge	Q <sub>rr</sub>			7		
Maximum Body-Diode Continuous Current	I <sub>S</sub>				-0.42	A
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =-0.42A, V <sub>GS</sub> =0V (Note.1)			-1.2	V

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

#### ■ Marking

Marking	52AP <sub>F</sub>
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## P-Channel MOSFET FDN352AP-HF (KDN352AP-HF)

■ Typical Characteristics

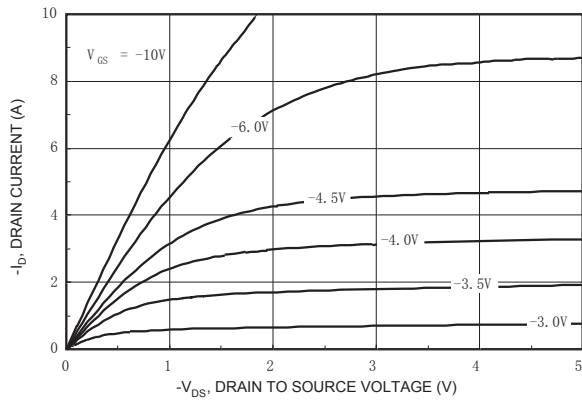


Figure 1. On-Region Characteristics.

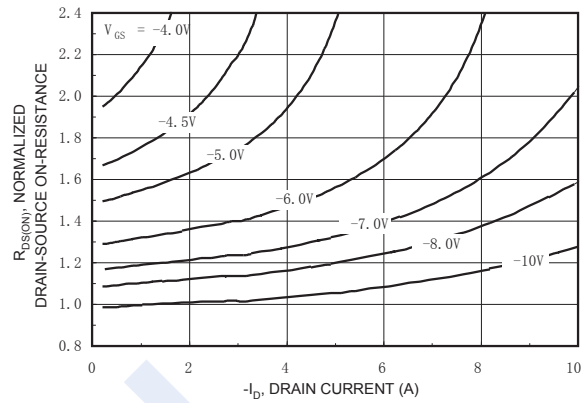


Figure 2. On-Resistance Variation with Drain Current and Gate Voltage.

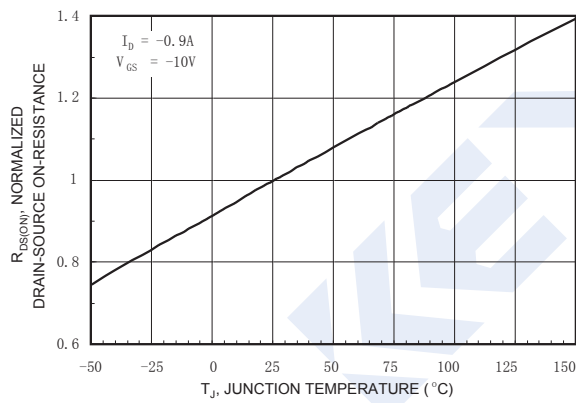


Figure 3. On-Resistance Variation with Temperature.

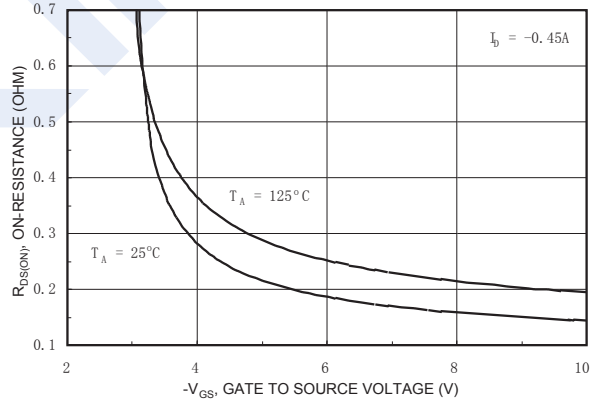


Figure 4. On-Resistance Variation with Gate-to-Source Voltage.

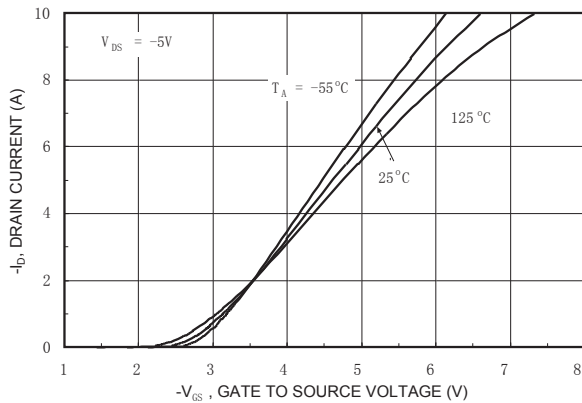


Figure 5. Transfer Characteristics.

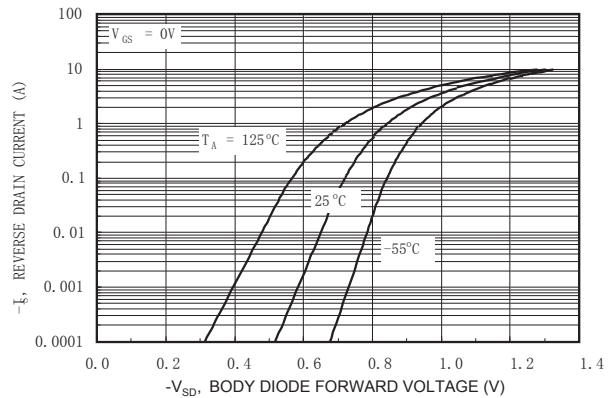


Figure 6. Body Diode Forward Voltage Variation with Source Current and Temperature.

## P-Channel MOSFET FDN352AP-HF (KDN352AP-HF)

■ Typical Characteristics

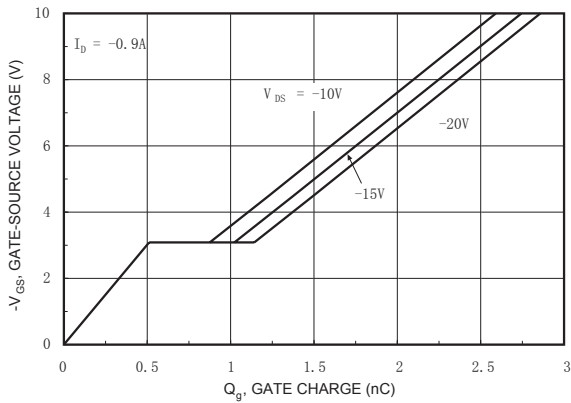


Figure 7. Gate Charge Characteristics.

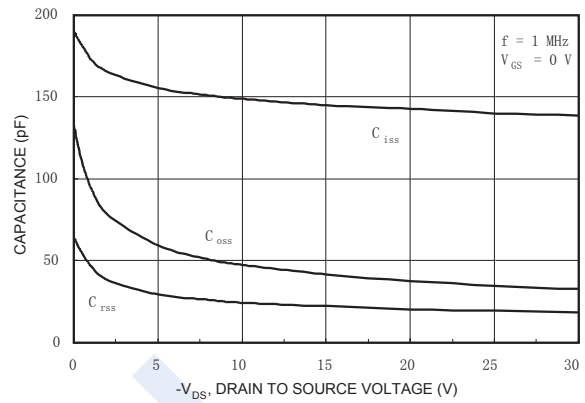


Figure 8. Capacitance Characteristics.

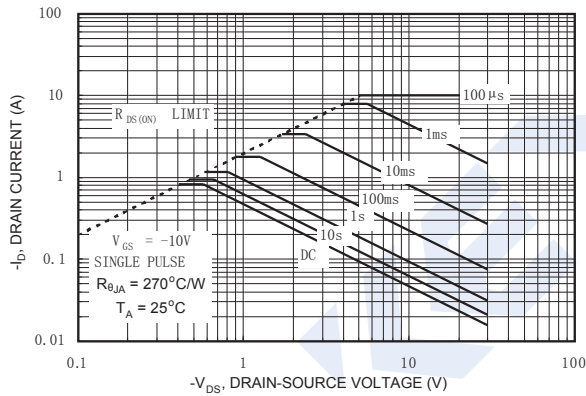


Figure 9. Maximum Safe Operating Area.

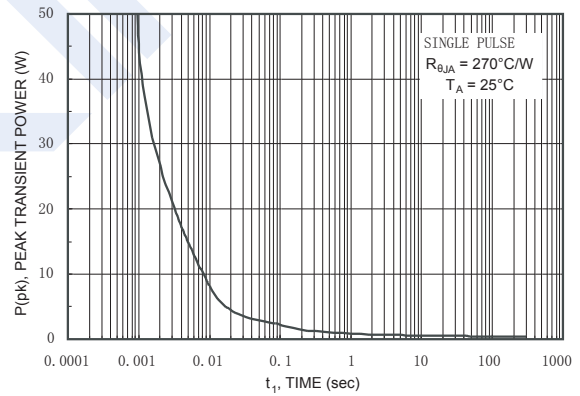


Figure 10. Single Pulse Maximum Power Dissipation.

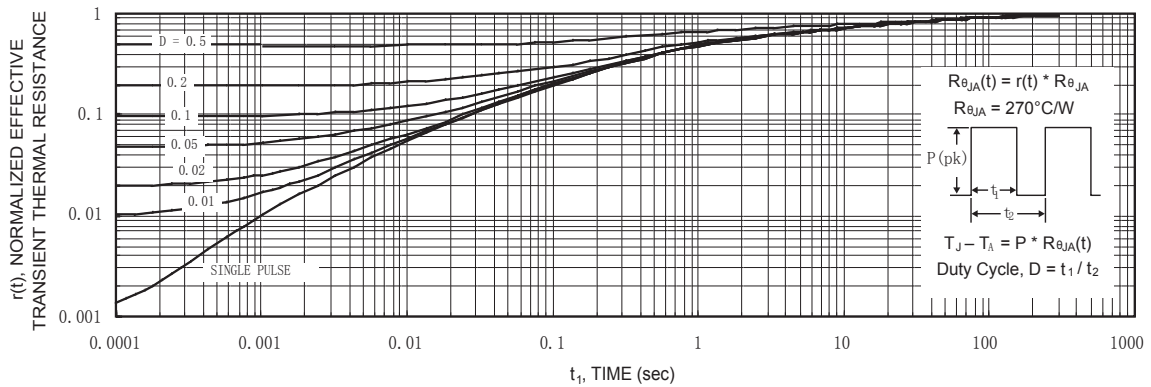


Figure 11. Transient Thermal Response Curve.