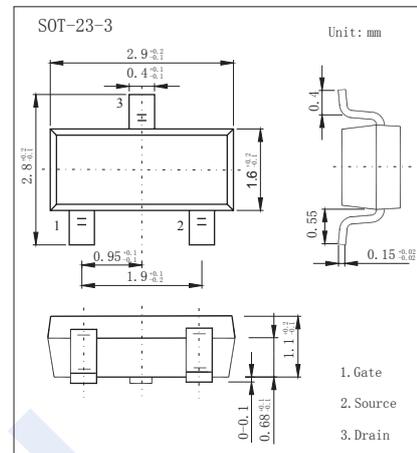
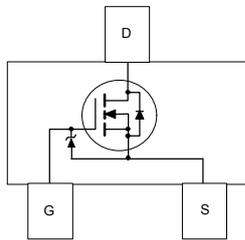


## N-Channel MOSFET

### FDV303N (KDV303N)

#### ■ Features

- $V_{DS} (V) = 25V$
- $I_D = 0.68 A$
- $R_{DS(ON)} < 450m\Omega$  ( $V_{GS} = 4.5V$ )
- $R_{DS(ON)} < 600m\Omega$  ( $V_{GS} = 2.7V$ )



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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	25	V
Gate-Source Voltage	$V_{GS}$	$\pm 8$	
Electrostatic Discharge Rating MIL-STD-883D Human Body Model (100pf / 1500 Ohm)	ESD	6	KV
Continuous Drain Current	$I_D$	0.68	A
Pulsed Drain Current	$I_{DM}$	2	
Power Dissipation	$P_D$	350	mW
Thermal Resistance, Junction- to-Ambient	$R_{thJA}$	357	$^\circ C/W$
Junction Temperature	$T_J$	150	$^\circ C$
Storage Temperature Range	$T_{stg}$	-55 to 150	

## N-Channel MOSFET

### FDV303N (KDV303N)

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V <sub>DSS</sub>	I <sub>D</sub> =250 μ A, V <sub>GS</sub> =0V	25			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =20V, V <sub>GS</sub> =0V			1	μ A
		V <sub>DS</sub> =20V, V <sub>GS</sub> =0V, T <sub>J</sub> =55°C			10	
Gate-Body Leakage Current	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =± 8 V			± 100	nA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250 μ A	0.65		1.5	V
Static Drain-Source On-Resistance (Note.1)	R <sub>DS(on)</sub>	V <sub>GS</sub> =4.5V, I <sub>D</sub> =0.5A			450	m Ω
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =0.5A T <sub>J</sub> =125°C			800	
		V <sub>GS</sub> =2.7V, I <sub>D</sub> =0.2A			600	
On State Drain Current	I <sub>D(ON)</sub>	V <sub>GS</sub> =2.7V, V <sub>DS</sub> =5V (Note.1)	0.5			A
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> =5V, I <sub>D</sub> =0.5A (Note.1)		1.45		S
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =10V, f=1MHz		50		pF
Output Capacitance	C <sub>oss</sub>			28		
Reverse Transfer Capacitance	C <sub>rss</sub>			9		
Total Gate Charge	Q <sub>g</sub>	V <sub>GS</sub> =4.5V, V <sub>DS</sub> =5V, I <sub>D</sub> =0.5A (Note.1)		1.64	2.3	nC
Gate Source Charge	Q <sub>gs</sub>			0.38		
Gate Drain Charge	Q <sub>gd</sub>			0.45		
Turn-On DelayTime	t <sub>d(on)</sub>	V <sub>GS</sub> =4.5V, V <sub>DS</sub> =6V, I <sub>D</sub> =0.5A, R <sub>G</sub> =50 Ω (Note.1)		3	6	ns
Turn-On Rise Time	t <sub>r</sub>			8.5	18	
Turn-Off DelayTime	t <sub>d(off)</sub>			17	30	
Turn-Off Fall Time	t <sub>f</sub>			13	25	
Maximum Body-Diode Continuous Current	I <sub>S</sub>				0.3	A
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =0.5A, V <sub>GS</sub> =0V			1.2	V

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

#### ■ Marking

Marking	303
---------	-----

## N-Channel MOSFET FDV303N (KDV303N)

### Typical Characteristics

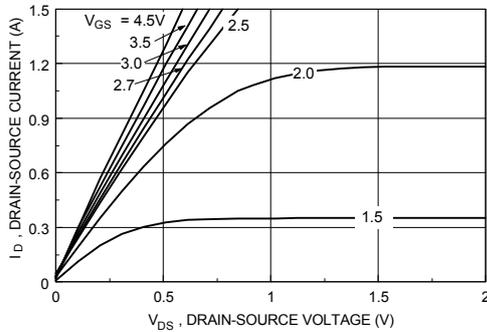


Figure 1. On-Region Characteristics.

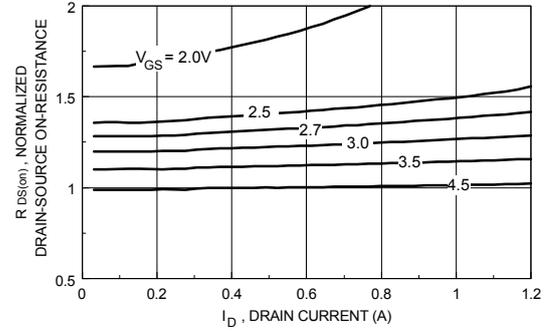


Figure 2. On-Resistance Variation with Drain Current and Gate Voltage.

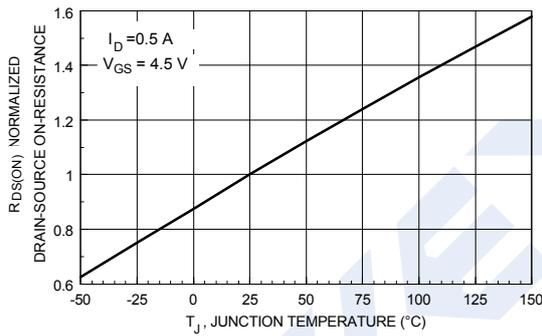


Figure 3. On-Resistance Variation with Temperature.

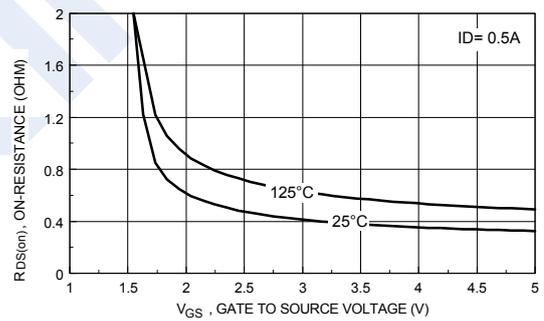


Figure 4. On Resistance Variation with Gate-To-Source Voltage.

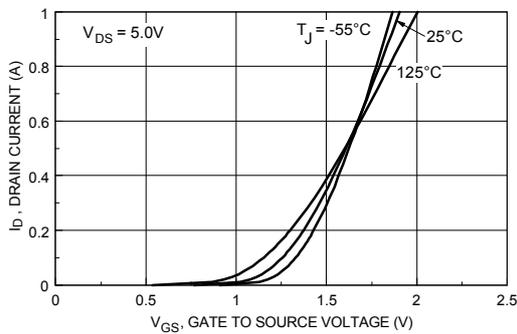


Figure 5. Transfer Characteristics.

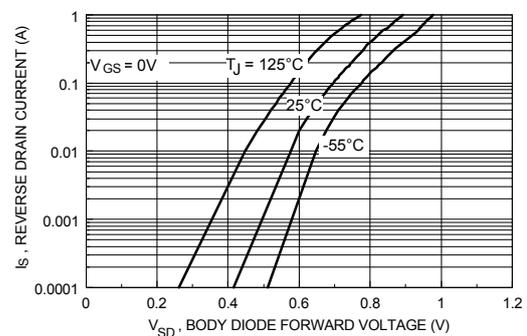


Figure 6. Body Diode Forward Voltage Variation with Source Current and Temperature.

## N-Channel MOSFET FDV303N (KDV303N)

■ Typical Characteristics

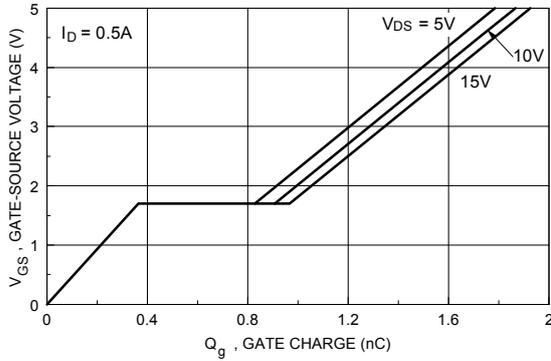


Figure 7. Gate Charge Characteristics.

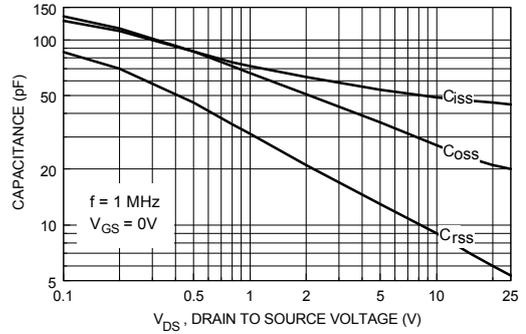


Figure 8. Capacitance Characteristics.

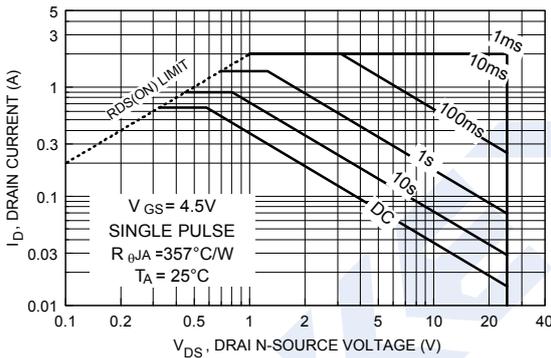


Figure 9. Maximum Safe Operating Area.

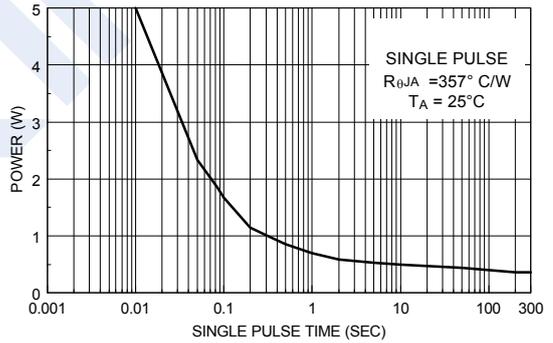


Figure 10. Single Pulse Maximum Power Dissipation.

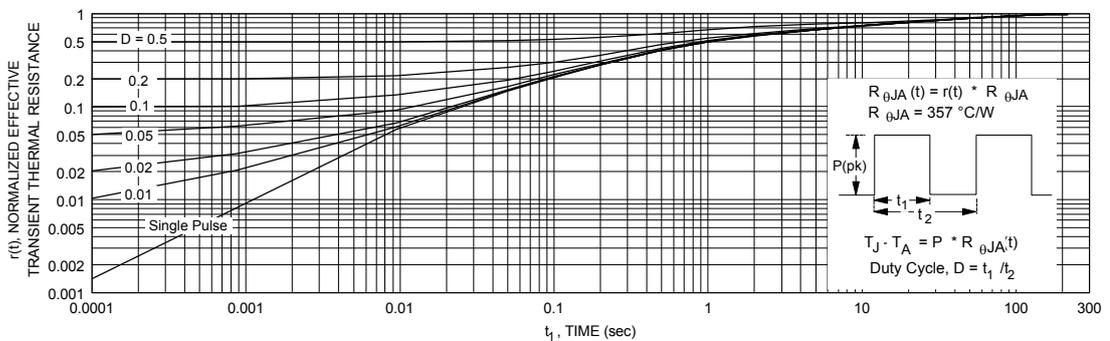


Figure 11. Transient Thermal Response Curve.