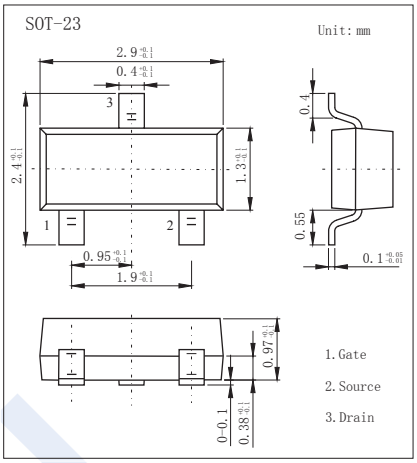
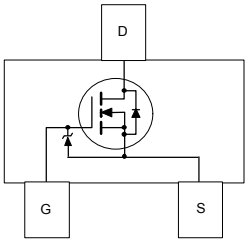
N-Channel MOSFET

FDV303N (KDV303N)



■ Features

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



■ Absolute Maximum Ratings Ta = 25℃

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	25	V
Gate-Source Voltage	V_{GS}	±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	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature Range	T_{stg}	-55 to 150	

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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	25			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V, V_{GS}=0V			1	μA
		V_{DS}=20V, V_{GS}=0V, T_J=55℃			10	
Gate-Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±8V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	0.65		1.5	V
Static Drain-Source On-Resistance (Note.1)	$R_{DS(on)}$	V_{GS}=4.5V, I_D=0.5A			450	mΩ
		V_{GS}=4.5V, I_D=0.5A T_J=125℃			800	
		V_{GS}=2.7V, I_D=0.2A			600	
On State Drain Current	$I_{D(ON)}$	V_{GS}=2.7V, V_{DS}=5V (Note.1)	0.5			A
Forward Transconductance	g_{FS}	V_{DS}=5V, I_D=0.5A (Note.1)		1.45		S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=10V, f=1MHz		50		pF
Output Capacitance	C_{oss}			28		
Reverse Transfer Capacitance	C_{rss}			9		
Total Gate Charge	Q_g	V_{GS}=4.5V, V_{DS}=5V, I_D=0.5A (Note.1)		1.64	2.3	nC
Gate Source Charge	Q_{gs}			0.38		
Gate Drain Charge	Q_{gd}			0.45		
Turn-On DelayTime	$t_{d(on)}$	V_{GS}=4.5V, V_{DS}=6V,I_D=0.5A,R_G=50Ω (Note.1)		3	6	ns
Turn-On Rise Time	t_r			8.5	18	
Turn-Off DelayTime	$t_{d(off)}$			17	30	
Turn-Off Fall Time	t_f			13	25	
Maximum Body-Diode Continuous Current	I_S				0.3	A
Diode Forward Voltage	V_{SD}	I_S=0.5A,V_{GS}=0V			1.2	V

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

■ Marking

Marking	303

N-Channel MOSFET

FDV303N (KDV303N)

■ Typical Characterisitics

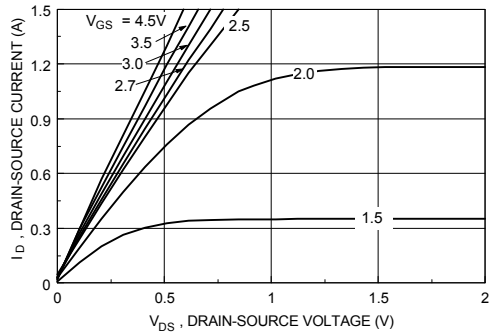

Figure 1. On-Region Characteristics.

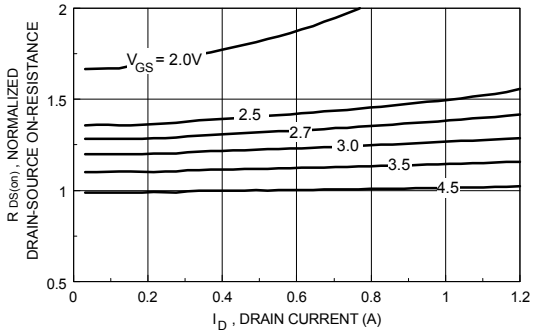

Figure 2. On-Resistance Variation with Drain Current and Gate Voltage.

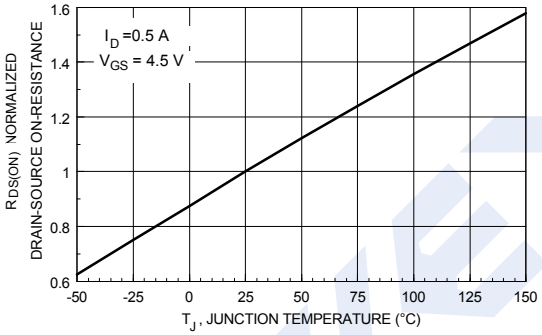

Figure 3. On-Resistance Variation with Temperature.

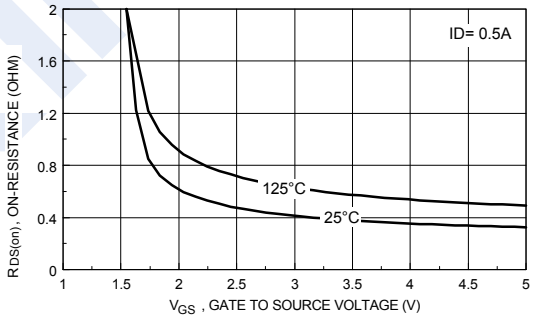

Figure 4. On Resistance Variation with Gate-To- Source Voltage.

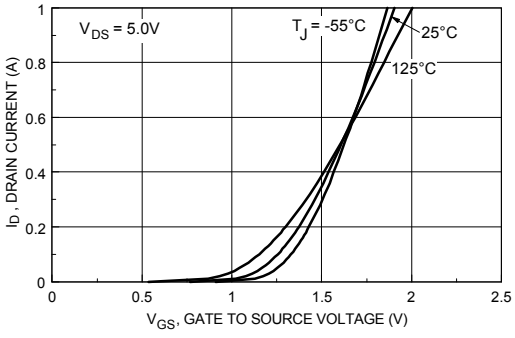

Figure 5. Transfer Characteristics.

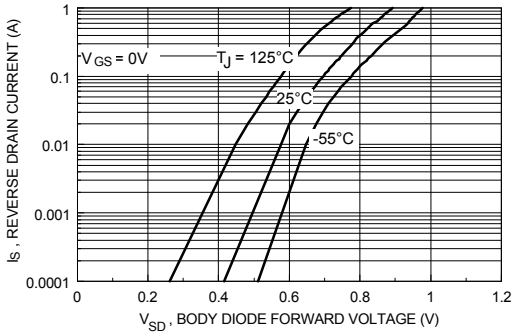

Figure 6. Body Diode Forward Voltage Variation with Source Current and Temperature.

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■ Typical Characterisitics

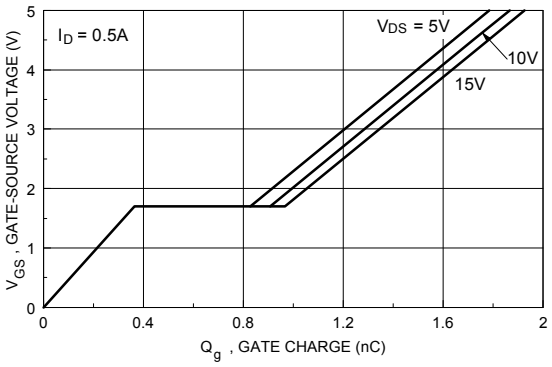

Figure 7. Gate Charge Characteristics.

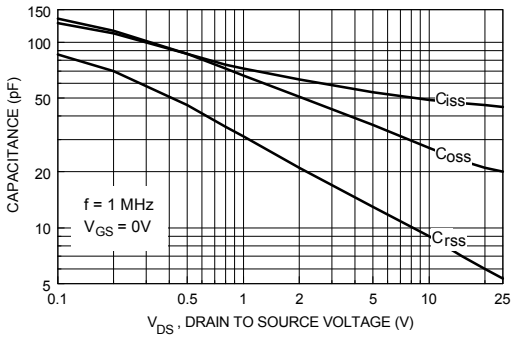

Figure 8. Capacitance Characteristics.

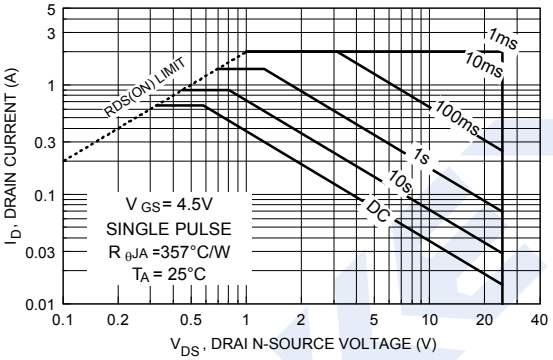

Figure 9. Maximum Safe Operating Area.

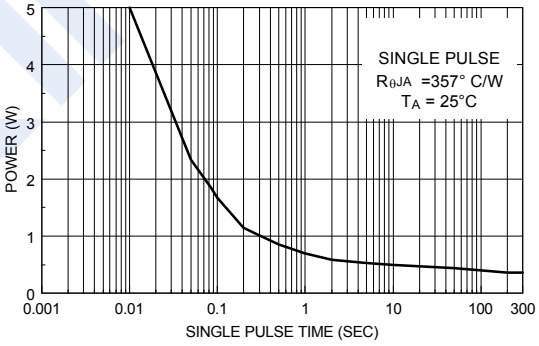

Figure 10. Single Pulse Maximum Power Dissipation.

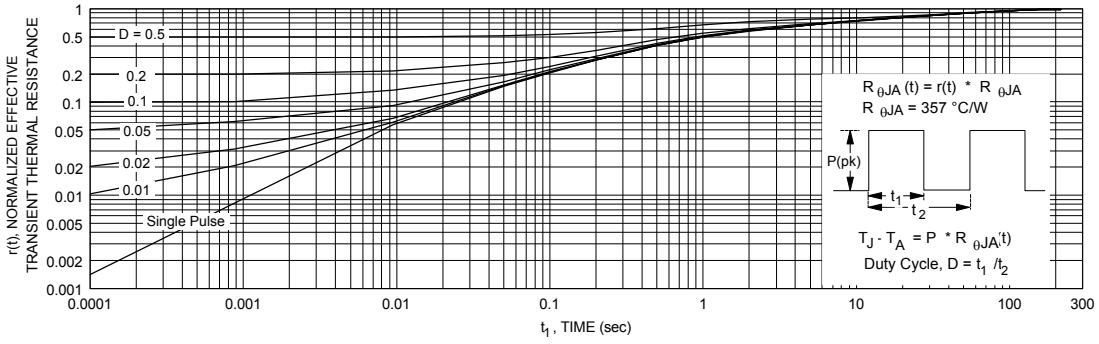

Figure 11. Transient Thermal Response Curve.