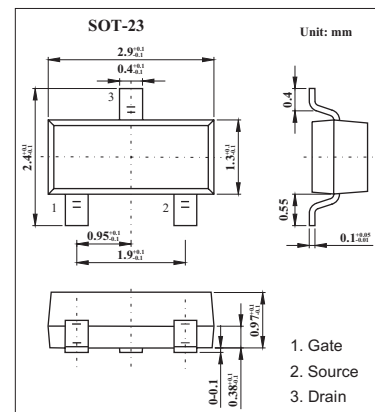
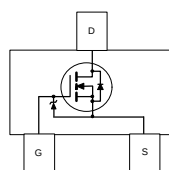


Digital FET, N-Channel

KDV303N

■ Features

- 0.68 A, 25 V. $R_{DS(ON)} = 0.45 \Omega$ @ $V_{GS} = 4.5$ V
 $R_{DS(ON)} = 0.6 \Omega$ @ $V_{GS} = 2.7$ V.
- Very low level gate drive requirements allowing direct operation in 3V circuits. $V_{GS(th)} < 1.5$ V.
- Gate-Source Zener for ESD ruggedness.
 >6kV Human Body Model



■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Drain to Source Voltage	V_{DSS}	25	V
Gate to Source Voltage	V_{GSS}	8	V
Drain Current- Continuous	I_D	0.68	A
Drain Current- pulse		2	A
Power Dissipation for Single Operation	P_D	0.35	W
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-55 to +150	$^\circ\text{C}$
Thermal Resistance, Junction-to- Ambient	$R_{\theta JA}$	357	$^\circ\text{C/W}$

KDV303N

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V _{DSS}	V _{GS} = 0 V, I _D = 250 μ A	25			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 20 V, V _{GS} = 0 V			1	μ A
		V _{DS} = 20 V, V _{GS} = 0 V, T _J = 55°C			10	μ A
Gate-Body Leakage Current, Forward	I _{GSSF}	V _{GS} = 8 V, V _{DS} = 0 V			100	nA
Gate-Body Leakage Current, Reverse	I _{GSSR}	V _{GS} = -8 V, V _{DS} = 0 V			-100	nA
Gate Threshold Voltage *	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μ A	0.65	0.8	1.5	V
Static Drain-Source On-Resistance*	R _{DS(on)}	V _{GS} = 4.5 V, I _D = 0.5 A		0.33	0.45	Ω
		V _{GS} = 4.5 V, I _D = 0.2 A, T _J = 125°C		0.52	0.8	Ω
		V _{GS} = 2.7 V, I _D = 0.2 A		0.44	0.6	Ω
On-State Drain Current *	I _{D(on)}	V _{GS} = 2.7 V, V _{DS} = 5 V	0.5			A
Forward Transconductance *	g _{FS}	V _{DS} = 5 V, I _D = 0.5 A		1.45		S
Input Capacitance	C _{iss}	V _{DS} = 10 V,		50		pF
Output Capacitance	C _{oss}	V _{GS} = 0 V,		28		pF
Reverse Transfer Capacitance	C _{rss}	f = 1.0 MHz		9		pF
Turn-On Delay Time	t _{d(on)}	V _{DD} = 6 V, I _D = 0.5 A,		3	6	ns
Turn-On Rise Time	t _r	V _{GS} = 4.5 V, R _{GEN} = 50 Ω		8.5	18	ns
Turn-Off Delay Time	t _{d(off)}			17	30	ns
Turn-Off Fall Time	t _f			13	25	ns
Total Gate Charge	Q _g	V _{DS} = 5 V, I _D = 0.5 A,		1.64	2.3	nC
Gate-Source Charge	Q _{gs}	V _{GS} = 4.5 V,		0.38		nC
Gate-Drain Charge	Q _{gd}			0.45		nC
Maximum Continuous Drain-Source Diode Forward Current	I _S				0.3	A
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} = 0 V, I _S = 0.5 A		0.83	1.2	V

* Pulse Test: Pulse Width < 300 μ s, Duty Cycle < 2.0%.

KDV303N

■ Typical Characteristics

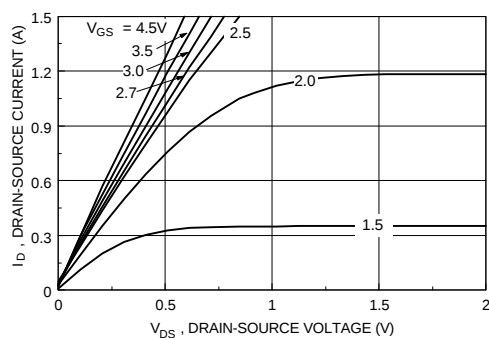


Figure 1. On-Region Characteristics.

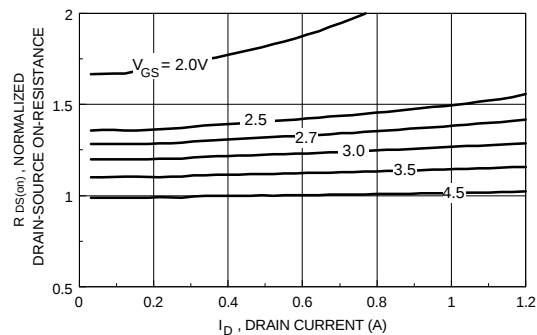


Figure 2. On-Resistance Variation with Drain Current and Gate Voltage.

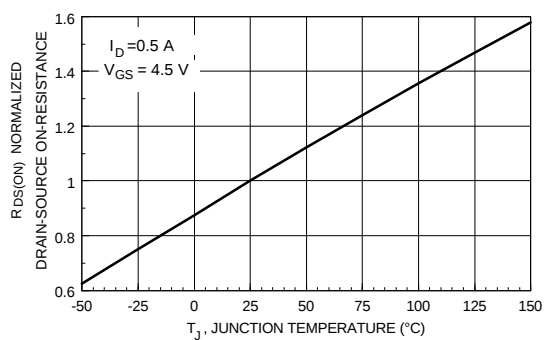


Figure 3. On-Resistance Variation with Temperature.

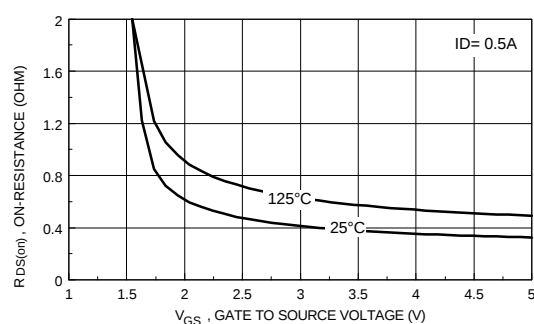


Figure 4. On Resistance Variation with Gate-To- Source Voltage.

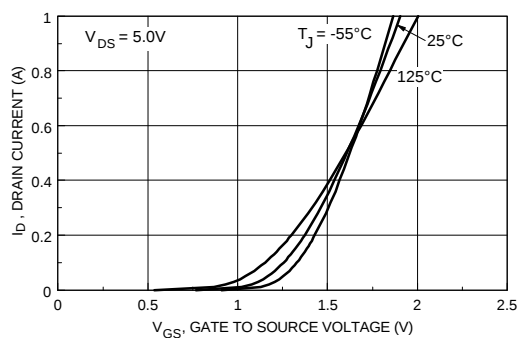


Figure 5. Transfer Characteristics.

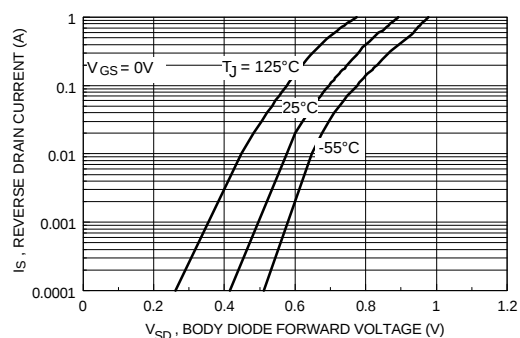


Figure 6. Body Diode Forward Voltage Variation with Source Current and Temperature.

KDV303N

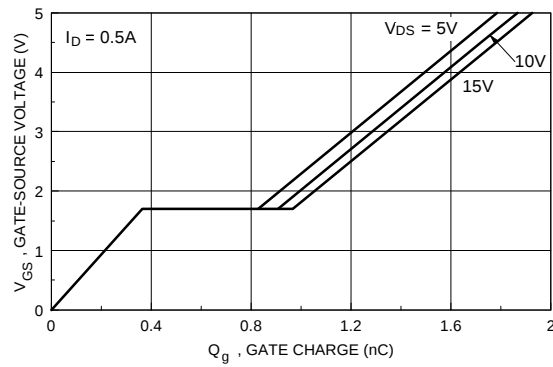


Figure 7. Gate Charge Characteristics.

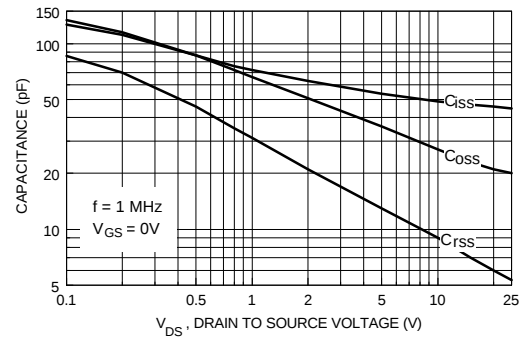


Figure 8. Capacitance Characteristics.

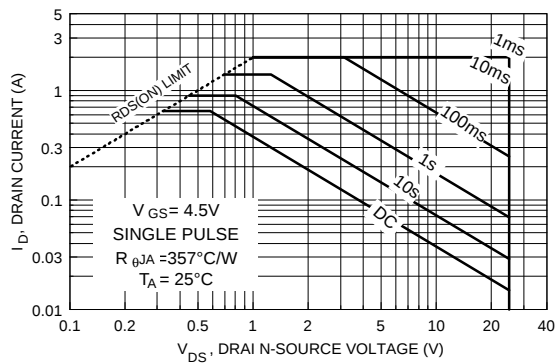


Figure 9. Maximum Safe Operating Area.

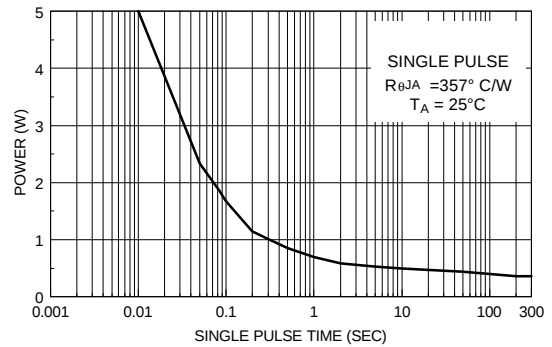


Figure 10. Single Pulse Maximum Power Dissipation.

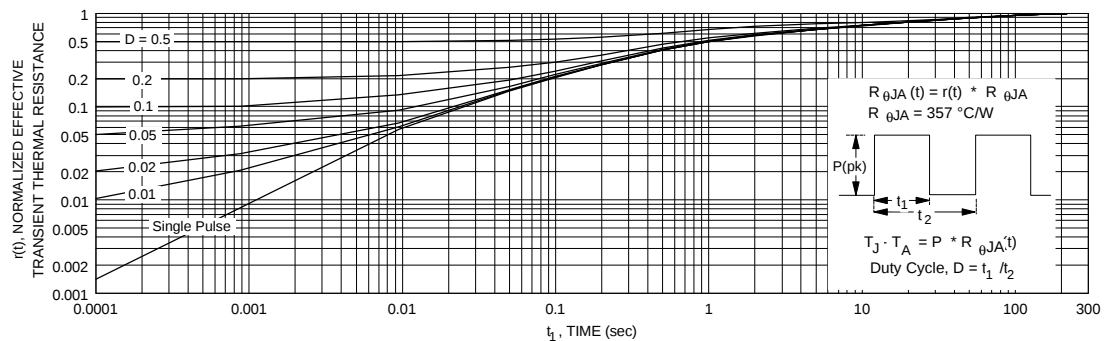


Figure 11. Transient Thermal Response Curve.