查询STD20N03L供应商 捷多邦，专业PCB打样工厂，24小时加急出货

SamHop Microelectronics Corp.

STU/D20N03L

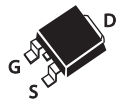
July 23 ,2004 Ver1.1

N-Channel Logic Level Enhancement Mode Field Effect Transistor

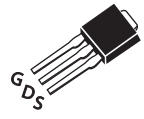
PRODUCT SUMMARY		
V_{DSS}	I_D	$R_{DS(ON)}$ (mΩ) Max
30V	28A	23 @ V_{GS} = 10V
		39 @ V_{GS} = 4.5V

FEATURES

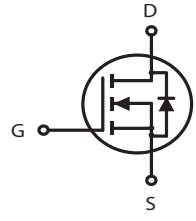
- Super high dense cell design for low $R_{DS(ON)}$.
- Rugged and reliable.
- TO-252 and TO-251 Package.



STU SERIES
TO-252AA(D-PAK)



STD SERIES
TO-251(I-PAK)



ABSOLUTE MAXIMUM RATINGS (T_C=25°C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous @TJ=125°C	I_D	28	A
-Pulsed [a]	I_{DM}	70	A
Drain-Source Diode Forward Current	I_S	20	A
Maximum Power Dissipation @Tc=25°C	P_D	50	W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to 175	°C
THERMAL CHARACTERISTICS			
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	3	°C/W
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	50	°C/W

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ELECTRICAL CHARACTERISTICS (Tc=25 C unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0V, I_D = 250uA	30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 24V, V_{GS} = 0V			1	uA
Gate-Body Leakage	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V			±100	nA
ON CHARACTERISTICS [a]						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250uA	1	1.5	2.5	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS} = 10V, I_D =20A		17	23	m ohm
		V_{GS} = 4.5V, I_D = 10A		30	39	m ohm
On-State Drain Current	$I_{D(ON)}$	V_{DS} = 10V, V_{GS} = 10V	50			A
Forward Transconductance	g_{FS}	V_{DS} = 10V, I_D = 20A		8		S
DYNAMIC CHARACTERISTICS [b]						
Input Capacitance	C_{ISS}	V_{DS} =25V, V_{GS} = 0V f = 1.0MHz		614		pF
Output Capacitance	C_{OSS}			83		pF
Reverse Transfer Capacitance	C_{RSS}			61		pF
SWITCHING CHARACTERISTICS [b]						
Turn-On Delay Time	$t_{D(ON)}$	V_{DD} = 15V I_D =1A V_{GS} = 10V R_L = 15 ohm R_{GEN} = 11 ohm		15.2		ns
Rise Time	t			4.5		ns
Turn-Off Delay Time	$t_{D(OFF)}$			23.3		ns
Fall time	t			12.7		ns
Total Gate Charge	Q_g	V_{DD} = 15V, I_D = 1A, V_{GS} =10V		17.8		nC
		V_{DS} = 15V, I_D = 1A, V_{GS} =4.5V		8.8		nC
Gate-Source Charge	Q_{gs}	V_{DD} = 15V, I_D = 1A RL=15 ohm		2.8		nC
Gate-Drain Charge	Q_{gd}			3		nC

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ELECTRICAL CHARACTERISTICS (T_C=25°C unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
DRAIN-SOURCE DIODE CHARACTERISTICS [a]						
Diode Forward Voltage	V_{SD}	V_{GS} = 0V, Is = 20A		1	1.3	V

Notes

a.Pulse Test:Pulse Width ≤ 300us, Duty Cycle ≤ 2%.

b.Guaranteed by design, not subject to production testing.

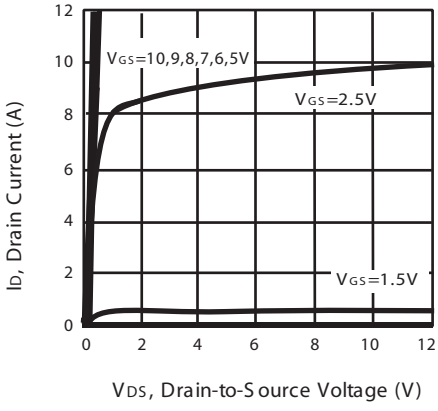

Figure 1. Output Characteristics

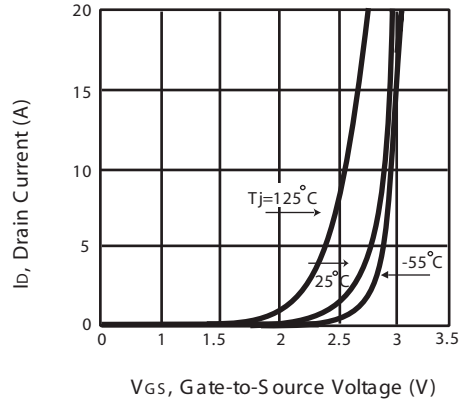

Figure 2. Transfer Characteristics

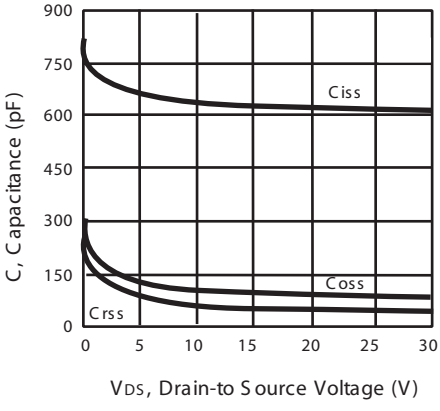

Figure 3. Capacitance

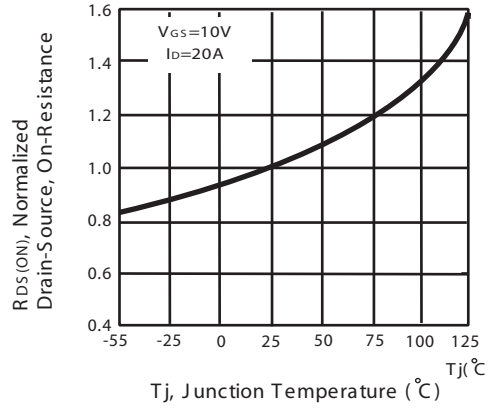

Figure 4. On-Resistance Variation with Drain Current and Temperature

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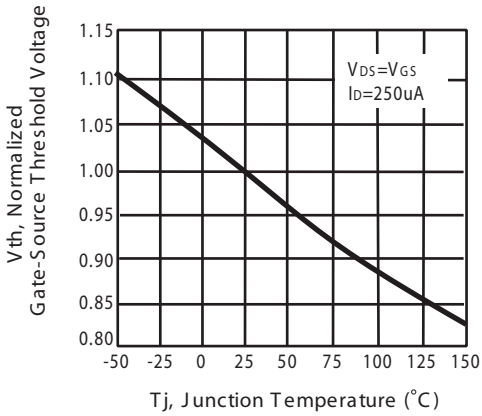

Figure 5. Gate Threshold Variation with Temperature

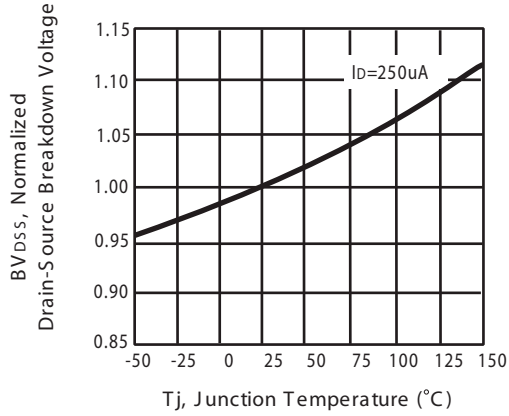

Figure 6. Breakdown Voltage Variation with Temperature

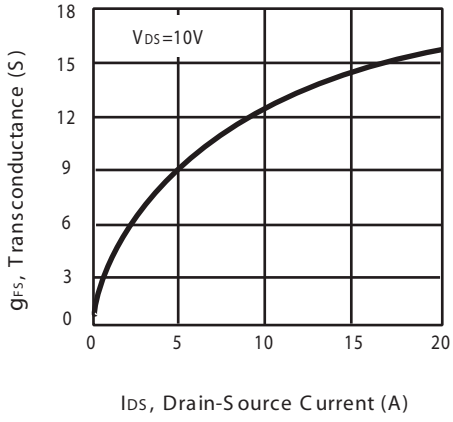

Figure 7. Transconductance Variation with Drain Current

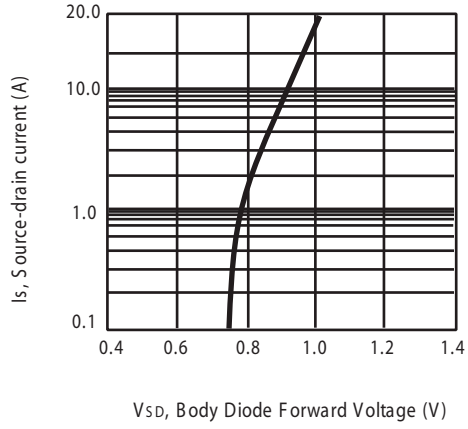

Figure 8. Body Diode Forward Voltage Variation with Source Current

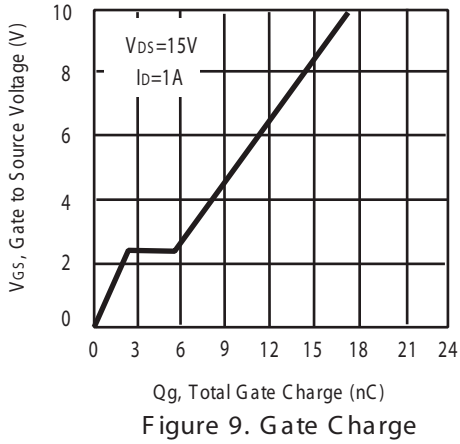

Figure 9. Gate Charge

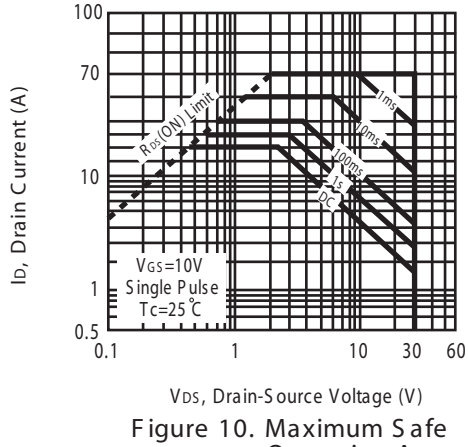

Figure 10. Maximum Safe Operating Area

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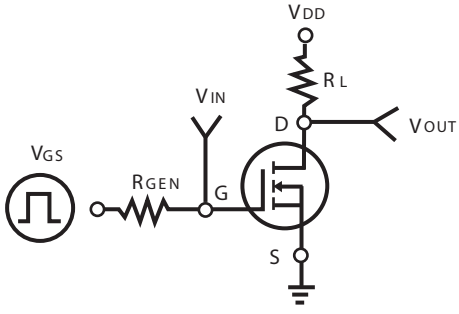

Figure 11. Switching Test Circuit

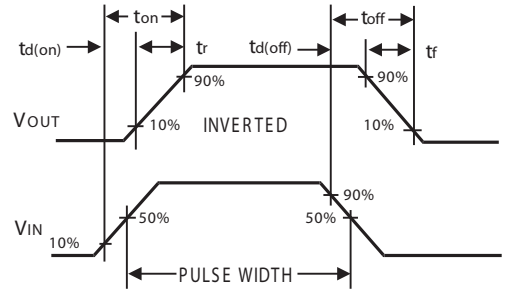

Figure 12. Switching Waveforms

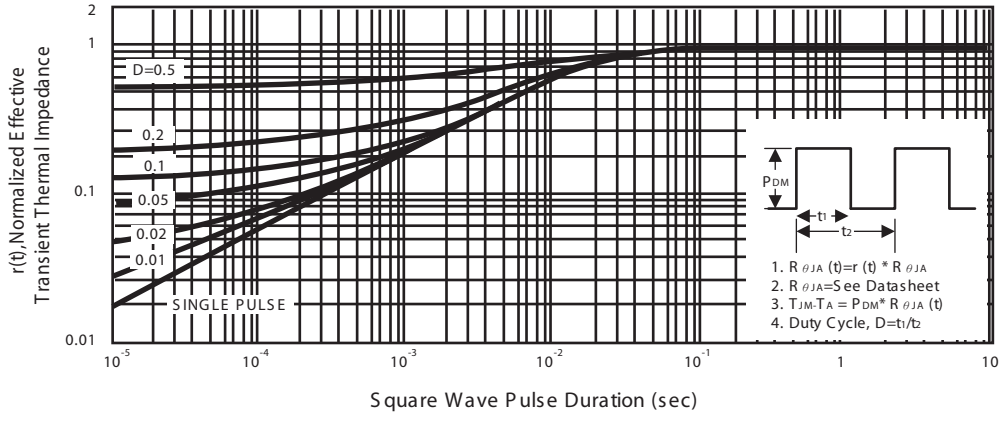

Figure 13. Normalized Thermal Transient Impedance Curve