

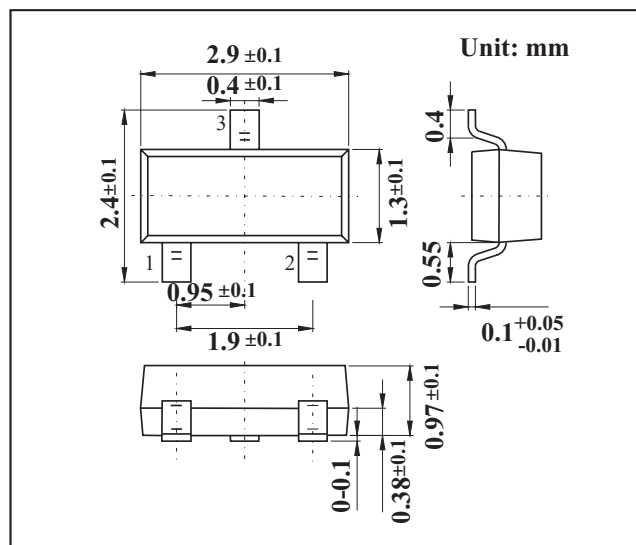
20V N-Channel MOSFETS

Features

- N-Channel Enhancement Mode Field Effect Transistor
- VDS=20V,RDS(ON)=40mΩ,VGS=4.5V,ID=5.0A
- VDS=20V,RDS(ON)=60mΩ,VGS=2.5V,ID=4.0A
- VDS=20V,RDS(ON)=75mΩ,VGS=1.8V,ID=1.0A

MECHANICAL DATA

- Case style:SOT-23molded plasti
- Mounting position:any



MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V _{DS}	20	V
Gate-Source Voltage	V _{GS}	± 10	V
Drain-Current -Continuous T _J =125 °C -Pulsed	I _D	3.8	A
	I _{DM}	15	A
Power Dissipation	P _D	1.25	W
Thermal Resistance, Junction-to-Ambient	R _{thJA}	100	°C/W
Operating Junction and Storage Temperature Range	T _J , T _{stg}	-55to-	°C

* Surface Mounted on FR 4 Board , t ≤10 sec.

MOSFET ELECTRICAL CHARACTERISTICS Ta=25 °C unless otherwise specified

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V _{DSS}	V _{GS} =0V, I _D =250uA	20			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =20V, V _{GS} =0V			1	uA
Gate-Body Leakage	I _{GSS}	V _{GS} =±10V, V _{DS} =0V			± 100	nA
Gate Threshold Voltage *	V _{GS(th)}	V _{GS} =V _{DS} , I _D =250uA	0.6	0.78	1.5	V
Drain- Source on-state Resistance *	R _{DS(ON)}	V _{GS} =4.5V, I _D =5.0A		32	40	m Ω
		V _{GS} =2.5V, I _D =4.0A		50	60	m Ω
		V _{GS} =1.8V, I _D =1.0A		62	75	m Ω
On-State Drain Current *	I _{D(ON)}	V _{DS} =5V, V _{GS} =4.5V	18			A
Forward Transconductance *	g _{FS}	V _{DS} =5V, I _D =5A	5			S
Input Capacitance	C _{ISS}	V _{DS} = 15 V , V _{GS} = 0V, f = 1.0MHZ		888		pF
Output Capacitance	C _{OSS}			144		pF
Reverse Transfer Capacitance	C _{RSS}			115		pF
Turn-On Delay Time	t _{D(on)}			31.8		ns
Rise Time	t _r	V _{DD} =10V, I _D =1A, V _{GS} =4.5V, R _L =10 Ω R _{GEN} =6 Ω		14.5		ns
Turn-Off Delay Time	t _{D(off)}			50.3		ns
Fall Time	t _f			31.9		ns
Total Gate Charge	Q _g	V _{DS} = 10 V , I _D = 3.5 A , V _{GS} = 4.5 V		16.8		nC
Gate-Source Charge	Q _{gs}			2.5		nC
Gate-Drain Charge	Q _{gd}			5.4		nC
Drain-Source Diode Forward Current *	I _S				1.25	A
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =1.25A		0.825	1.2	V

* Pulse Test:Pulse Width ≤300 μ , Duty Cycle ≤2%

RATINGS AND CHARACTERISTIC CURVES

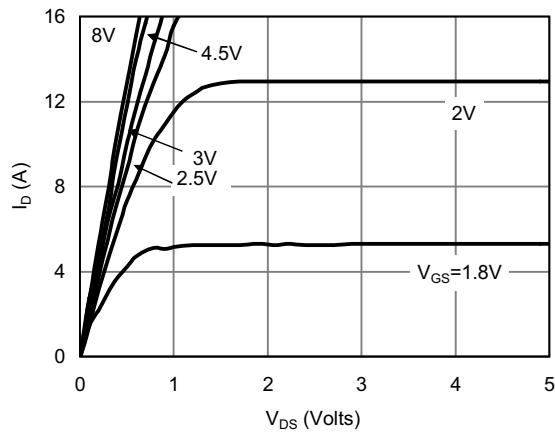


Fig 1: On-Region Characteristics

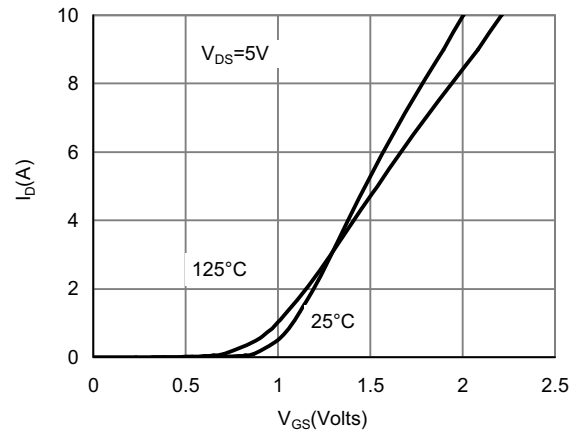


Figure 2: Transfer Characteristics

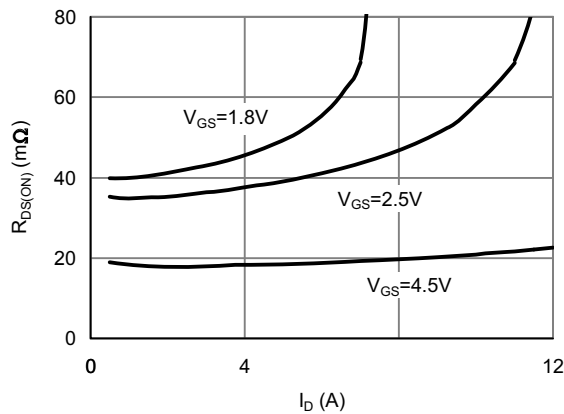


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

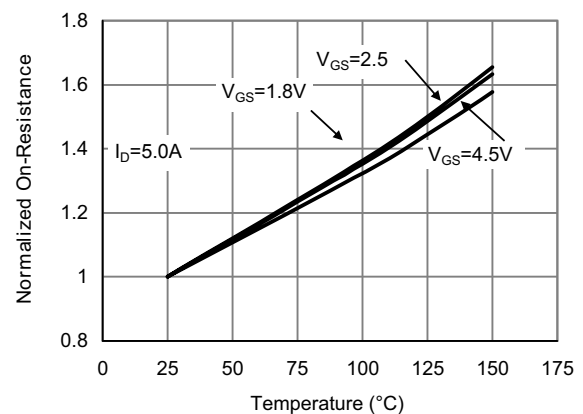


Figure 4: On-Resistance vs. Junction Temperature

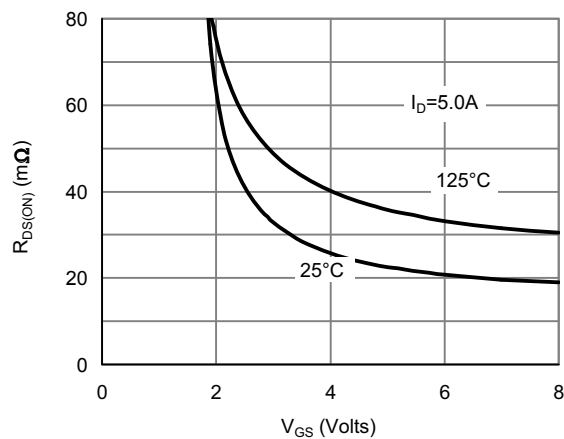


Figure 5: On-Resistance vs. Gate-Source Voltage

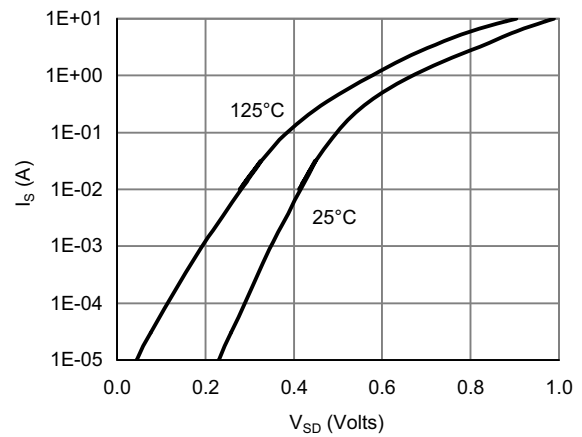


Figure 6: Body-Diode Characteristics