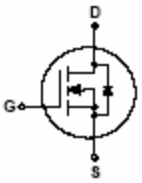
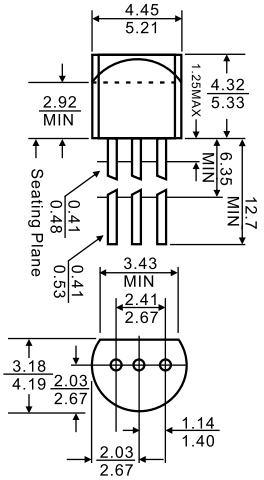
2N7000

Mosfet (N-Channel)

1. SOURCE
2. GATE
3. DRAIN



TO-92



Dimensions in inches and (millimeters)

Features

- ✧ High density cell design for low $R_{DS(ON)}$
- ✧ Voltage controlled small signal switch
- ✧ Rugged and reliable
- ✧ High saturation current capability

MAXIMUM RATINGS (T_A=25℃ unless otherwise noted)

Symbol	Parameter	Value	Units
V_{DS}	Drain-Source voltage	60	V
I_D	Drain Current	200	mA
P_D	Power Dissipation	350	mW
$R_{\theta JA}$	Thermal Resistance, junction to Ambient	357	℃/W
T_J	Junction Temperature	150	℃
T_{stg}	Storage Temperature	-55-150	℃

ELECTRICAL CHARACTERISTICS (Tamb=25℃ unless otherwise specified)

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0 V, I_D=10μA	60			V
Gate-Threshold Voltage*	$V_{th(GS)}$	V_{DS}=V_{GS}, I_D=1mA	0.8			
Gate-body Leakage	I_{GSS}	V_{DS}=0 V, V_{GS}=±15 V			±10	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60 V, V_{GS}=0 V			1	μA
On-state Drain Current	$I_{D(ON)}$	V_{GS}=4.5 V, V_{DS}=10 V	75			mA
Drain-Source On-Resistance*	$r_{DS(0n)}$	V_{GS}=4.5V, I_D=75mA			6	Ω
		V_{GS}=10V, I_D=500mA			5	
Forward Trans conductance*	g_{fs}	V_{DS}=10 V, I_D=200mA	100			ms
Drain-source on-voltage*	$V_{DS(on)}$	V_{GS}=10V, I_D=500mA			2.5	V
		V_{GS}=4.5V, I_D=75mA			0.45	V
Input Capacitance	C_{iss}	V_{DS}=25V, V_{GS}=0V, f=1MHz			60	pF
Output Capacitance	C_{OSS}				25	
Reverse Transfer Capacitance	C_{rSS}				5	

* pulse test.

SWITCHING TIME

Turn-on Time	$t_{d(on)}$	V_{DD}=15 V, R_L=30Ω I_D=500mA,V_{GEN}=10 V R_G=25 Ω			10	ns
Turn-off Time	$t_{d(off)}$				10	

Typical Characteristics

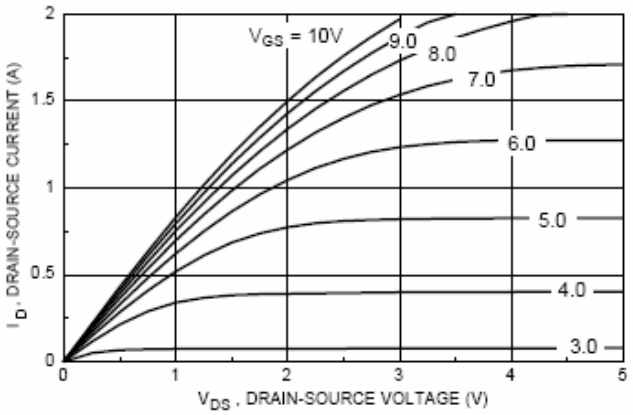


Figure 1. On-Region Characteristics

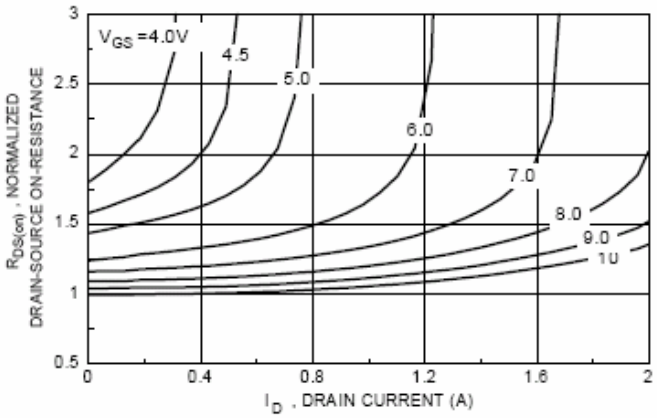


Figure 2. On-Resistance Variation with Gate Voltage and Drain Current

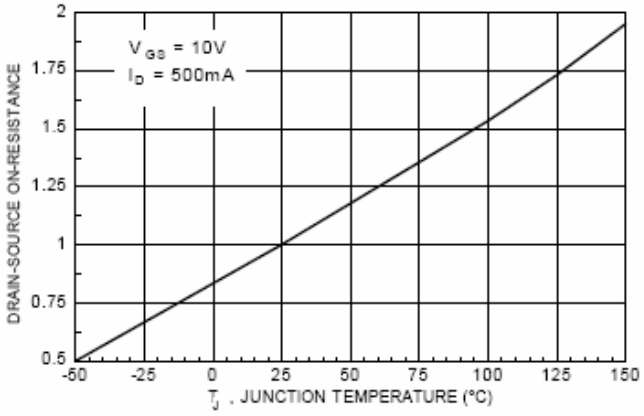


Figure 3. On-Resistance Variation with Temperature

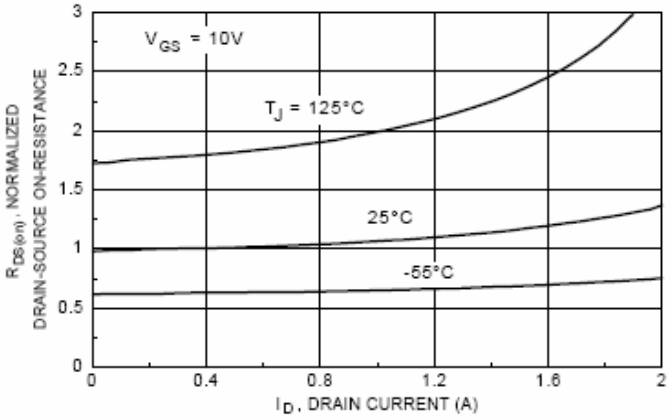


Figure 4. On-Resistance Variation with Drain Current and Temperature

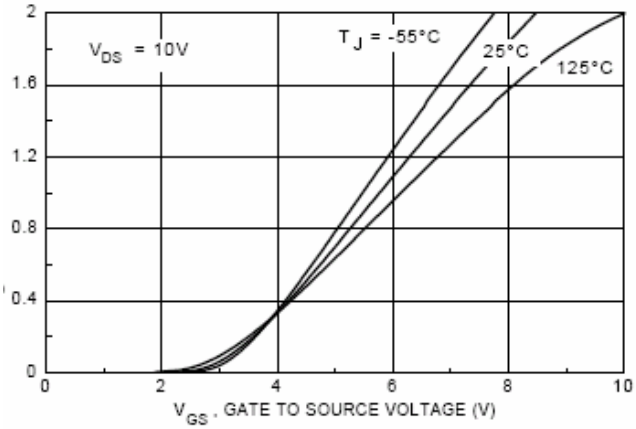


Figure 5. Transfer Characteristics

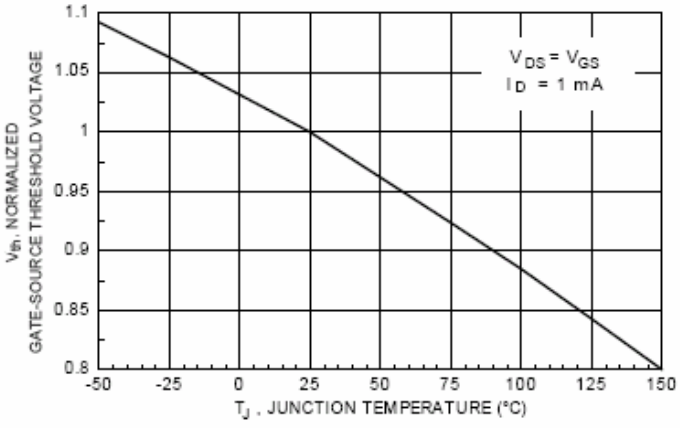


Figure 6. Gate Threshold Variation with Temperature

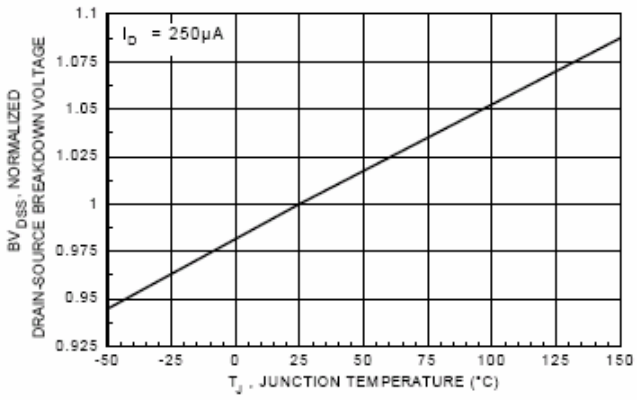


Figure 7. Breakdown Voltage Variation with Temperature

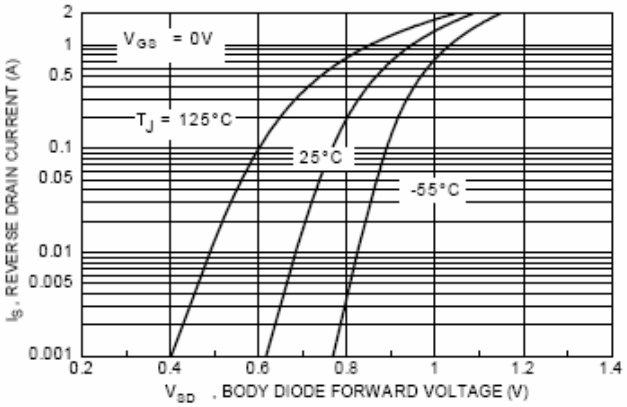


Figure 8. Body Diode Forward Voltage Variation with

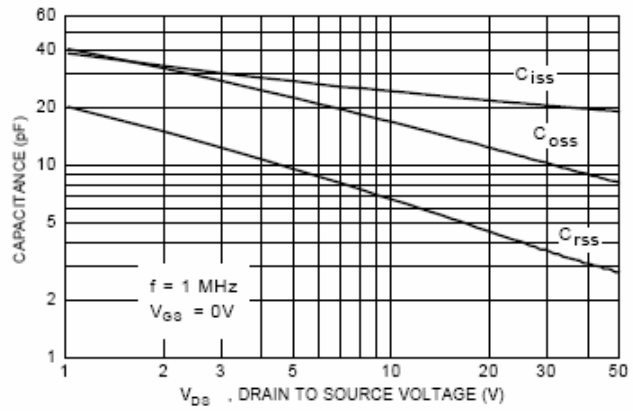


Figure 9. Capacitance Characteristics

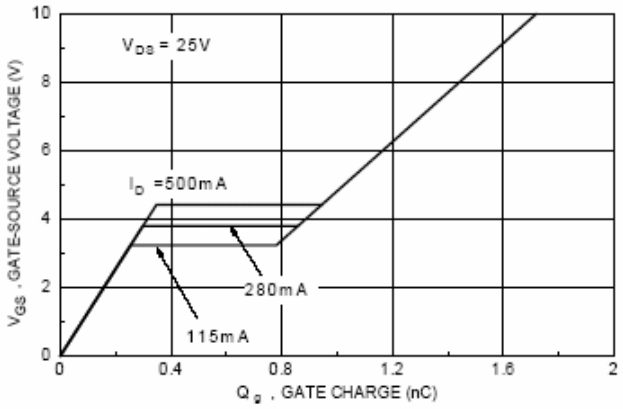


Figure 10. Gate Charge Characteristics