BP2N7002

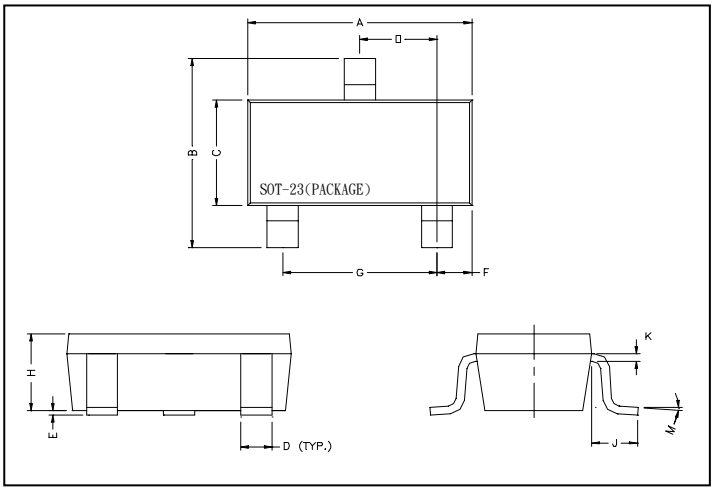
N-CHANNEL ENHANCEMENT MODE POWER MOSFET

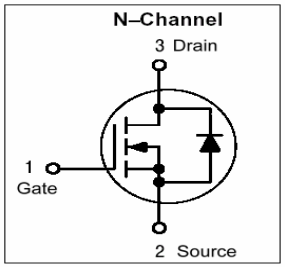
BV_{DSS}	60V
$R_{DS(ON)}$	4.5
I_D	500mA

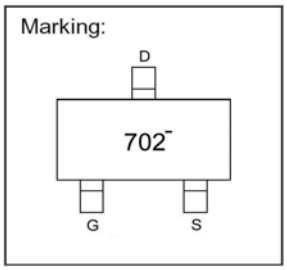
Description

The BP2N7002 is universally used for all commercial-industrial surface mount applications.

Package Dimensions







REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	1.90	REF.
B	2.40	2.80	H	1.00	1.30
C	1.40	1.60	K	0.10	0.20
D	0.35	0.50	J	0.40	-
E	0	0.10	L	0.85	1.15
F	0.45	0.55	M	0°	10°

Absolute Maximum Ratings at Ta = 25℃

Parameter	Symbol	Ratings	Unit
Operating Junction and Storage Temperature Range	Tj, Tstg	-55 ~ +150	℃
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage - Continuous	V_{GS}	±20	V
- Non-repetitive (tp≦50us)	V_{GSM}	±40	V
Continuous Drain Current (1)	I_D	500	mA
Pulsed Drain Current (2)	I_{DM}	800	mA
Power Dissipation	P_D	225	mW
Thermal Resistance ,Junction-to-Ambient	R_{thJA}	556	℃/W

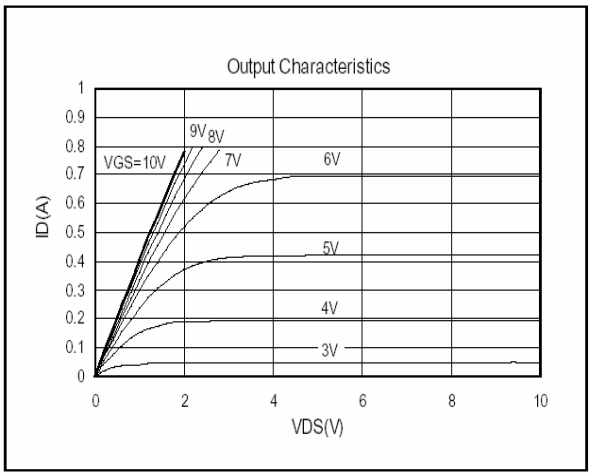
Electrical Characteristics (Tj = 25℃ unless otherwise specified)

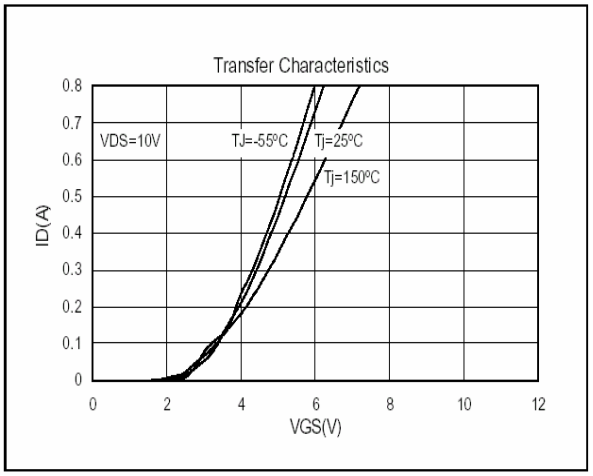
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	60	-	-	V	V_{GS}=0, I_D=250uA
Gate Threshold Voltage	$V_{GS(th)}$	1	-	2.5	V	V_{DS}=2.5V, I_D=0.25mA
Gate Body Leakage Current	I_{GSS}	-	-	±100	nA	V_{GS}=±20V, V_{DS}=0
Zero Gate Voltage Drain Current	I_{DSS}	-	-	1	uA	V_{DS}=60V, V_{GS}=0
On-State Drain Current	$I_{D(ON)}$	500	-	-	mA	V_{DS}=7.5V, V_{GS}=10V
Static Drain-Source on-State Resistance	$R_{DS(ON)}$	-	-	5	Ω	I_D=50mA, V_{GS}=5V
		-	-	4.5		I_D=500mA, V_{GS}=10V
Forward Transconductance	G_{FS}	80	-	-	mS	V_{DS}>2 $V_{DS(ON)}$, I_D=200mA
Input Capacitance	Ciss	-	-	50	pF	V_{DS}=25V, V_{GS}=0V, f=1MHz
Output Capacitance	Coss	-	-	25	pF	
Reverse Transfer Capacitance	Crss	-	-	5	pF	

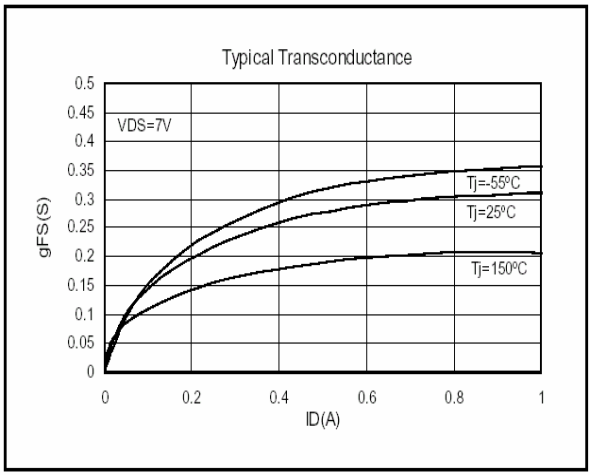
(1)The Power Dissipation of the package may result in a continuous train current.

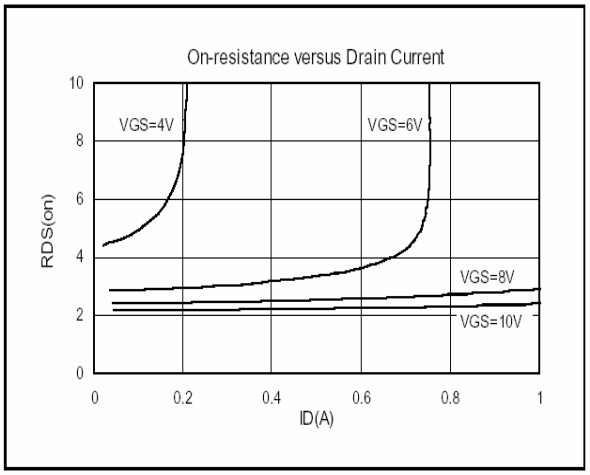
(2)Pulse Width ≦300us, Duty cycle≦2%.

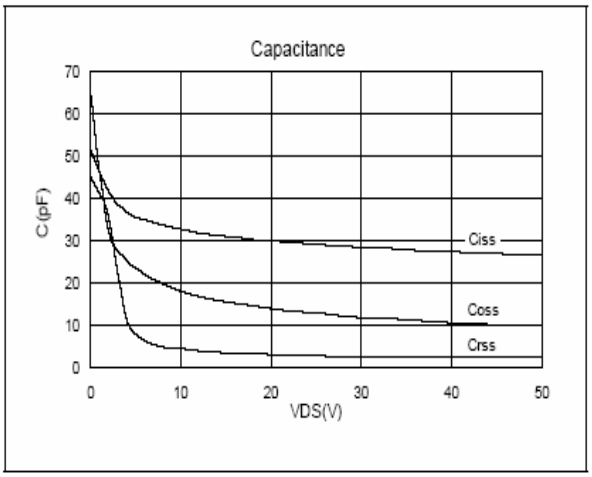
Characteristics Curve

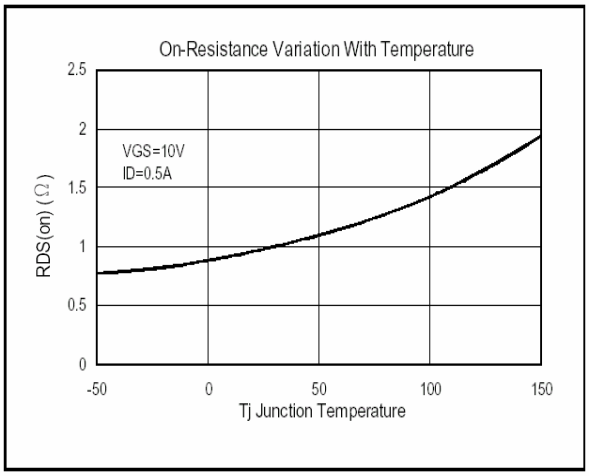


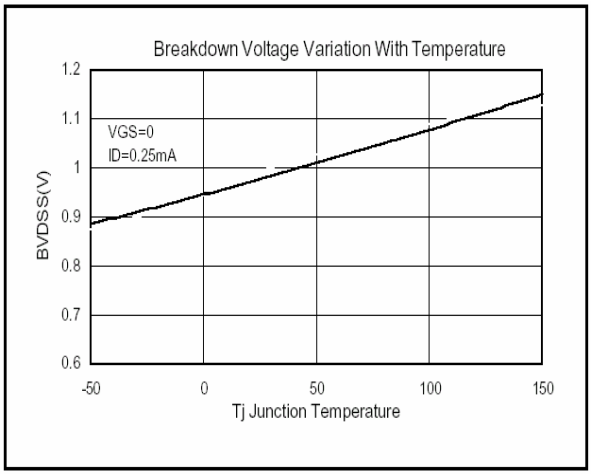


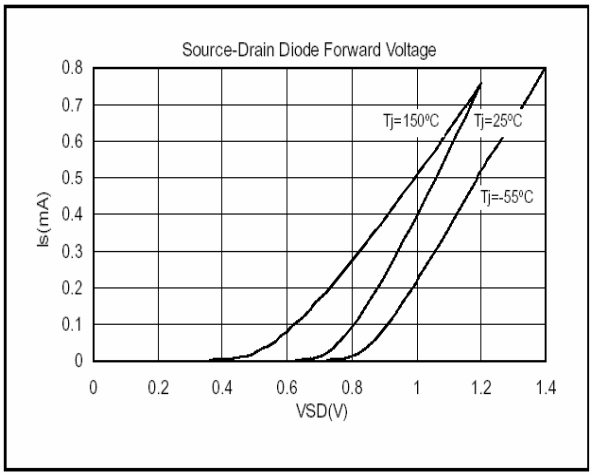


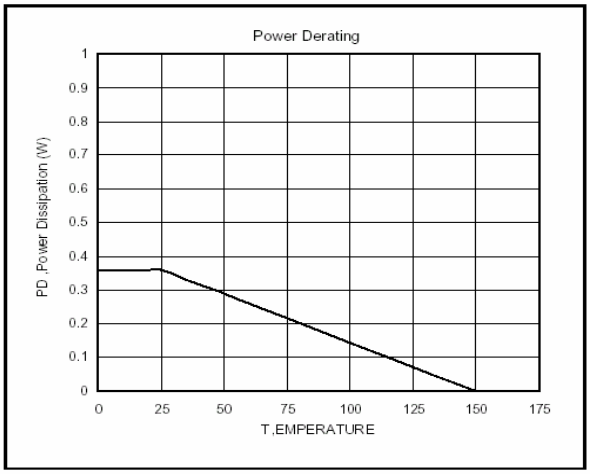


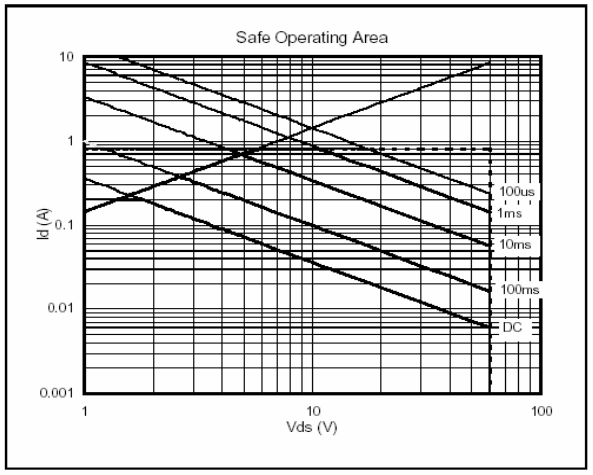


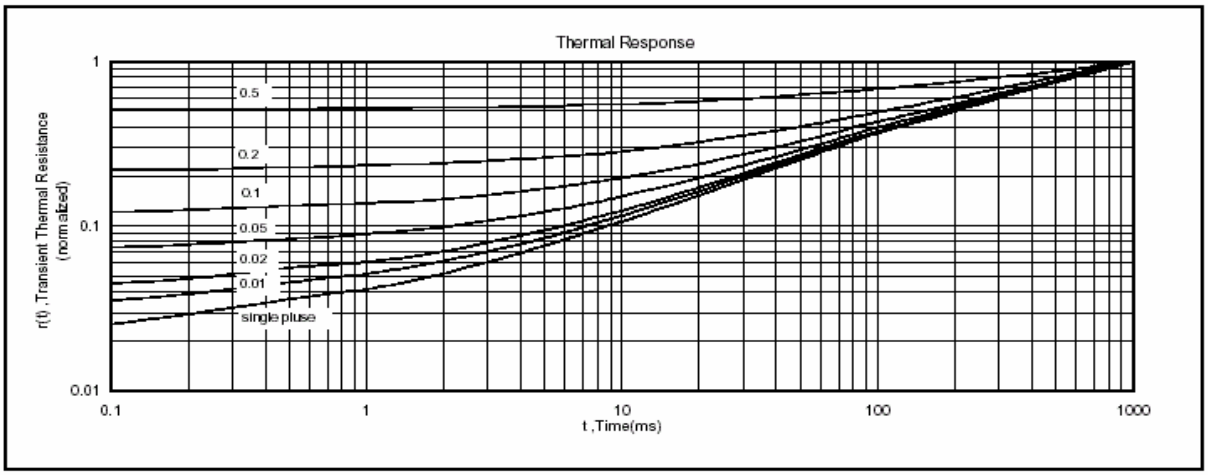



Breakdown Voltage Variation With Temperature
VGS=0
ID=0.25mA
BVDSS(V)
Tj Junction Temperature


Source-Drain Diode Forward Voltage
Tj=150°C
Tj=25°C
Tj=-55°C
Is(mA)
VSD(V)


Power Derating
PD ,Power Dissipation (W)
T ,EMPERATURE


Safe Operating Area
100us
1ms
10ms
100ms
DC
Id (A)
Vds (V)


Thermal Response
0.5
0.2
0.1
0.05
0.02
0.01
single pluse
r(t) ,Transient Thermal Resistance (normalized)
t ,Time(ms)