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## BS170 MOSFET N-Ch, Enhancement Mode High Speed Switch TO92 Type Package

**Absolute Maximum Ratings:**

Drain-Source Voltage,  $V_{DS}$  ..... 60V  
 Gate-Source Voltage,  $V_{GS}$  .....  $\pm 20V$   
 Drain Current (Note 1),  $I_D$  ..... 500mA  
 Total Device Dissipation ( $T_A = +25^\circ C$ ),  $P_D$  ..... 350mW  
 Operating Junction Temperature Range,  $T_J$  .....  $-55^\circ$  to  $+150^\circ C$   
 Storage Temperature Range,  $T_{stg}$  .....  $-55^\circ$  to  $+150^\circ C$

Note 1. The Power Dissipation of the package may result in a lower continuous drain current.

**Electrical Characteristics:** ( $T_A = +25^\circ C$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>OFF Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0, I_D = 100\mu A$	60	90	-	V
Gate Reverse Current	$I_{GSS}$	$V_{GS} = 15V, V_{DS} = 0$	-	0.01	10	nA
<b>ON Characteristics</b> (Note 2)						
Gate Threshold Voltage	$V_{GS(Th)}$	$V_{DS} = V_{GS}, I_D = 1mA$	0.8	2.0	3.0	V
Static Drain-Source ON Resistance	$r_{DS(on)}$	$V_{GS} = 10V, I_D = 200mA$	-	1.8	5.0	$\Omega$
Drain Cutoff Current	$I_{D(off)}$	$V_{DS} = 25V, V_{GS} = 0$	-	-	0.5	$\mu A$
Forward Transconductance	$g_{fs}$	$V_{DS} = 10V, I_D = 250mA$	-	200	-	mmhos
<b>Small-Signal Characteristics</b>						
Input Capacitance	$C_{iss}$	$V_{DS} = 10V, V_{GS} = 0, f = 1MHz$	-	-	60	pF
<b>Switching Characteristics</b>						
Turn-On Time	$t_{on}$	$I_D = 200mA$	-	4	10	ns
Turn-Off Time	$t_{off}$	$I_D = 200mA$	-	4	10	ns

Note 2. Pulse Test: Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$ .

