HAOLIN ELECTRONICS

Dec 2015

HP80N70

70V N -Channel MOSFET

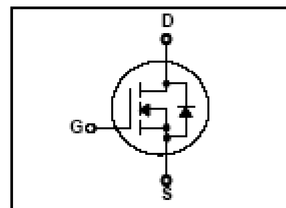
BV_{DSS} = 70V

$R_{DS(on)\ typ}$ =7 mΩ

I_D = 80 A

TO-220

1.Gate 2. Drain 3. Source



FEATURES

- Originative New Design
- Superior Avalanche Rugged Technology
- Robust Gate Oxide Technology
- Very Low Intrinsic Capacitances
- Excellent Switching Characteristics
- Unrivalled Gate Charge : 22 nC (Typ.)
- Extended Safe Operating Area
- Lower $R_{DS(ON)}$: 7mΩ (Typ.) @V_{GS}=10V
- 100% Avalanche Tested

Absolute Maximum Ratings

T_C=25℃ unless otherwise specified

Symbol	Parameter	Value	Units
V_{DSS}	Drain-Source Voltage	70	V
I_D	Drain Current – Continuous (T_C = 25℃)	80	A
	Drain Current – Continuous (T_C = 100℃)	60A	A
I_{DM}	Drain Current – Pulsed (Note 1)	350	A
V_{GS}	Gate-Source Voltage	±20	V
E_{AS}	Single Pulsed Avalanche Energy (Note 2)	230	mJ
I_{AR}	Avalanche Current (Note 1)	28	A
E_{AR}	Repetitive Avalanche Energy (Note 1)	20	mJ
dv/dt	Peak Diode Recovery dv/dt (Note 3)	5.8	V/ns
P_D	Power Dissipation (T_C = 25℃)	180	W
	– Derate above 25℃	1.3	W/℃
T_J, T_{STG}	Operating and Storage Temperature Range	-55 to +175	℃
T_L	Maximum lead temperature for soldering purposes, 1/8” from case for 5 seconds	300	℃

Thermal Resistance Characteristics

Symbol	Parameter	Typ.	Max.	Units
$R_{\theta JC}$	Junction-to-Case	--	0.75	℃/W
$R_{\theta CS}$	Case-to-Sink	0.5	--	
$R_{\theta JA}$	Junction-to-Ambient	--	62.5	

70V_{DS}／±25V_{GS}／80A(I_D) N-Channel Enhancement Mode MOSFET

Electrical Characteristics (T_A=25℃ Unless Otherwise Specified)

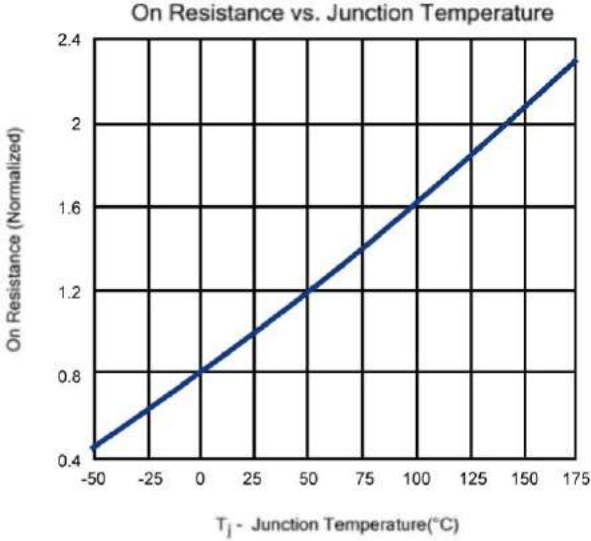
STATIC						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250μA	70			V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	2.0		4.0	V
I_{GSS}	Gate-Body Leakage	V_{DS}=0V, V_{GS}=±20V			±100	nA
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=70V, V_{GS}=0V			1	μA
$R_{DS(ON)}$	Drain-Source On-Resistance*	V_{GS}=10V, I_D=40A		7	8.5	mΩ
V_{SD}	Diode Forward Voltage *	I_S=40A, V_{GS}=0V		0.9	1.3	V
DYNAMIC						
Qg	Total Gate Charge	V_{DD}=70V, V_{GS}=10V, I_D=80A		134		nC
Qg	Total Gate Charge	V_{DD}=70V, V_{GS}=4.5V, I_D=80A		27		
Qgs	Gate-Source Charge			36		
Qgd	Gate-Drain Charge			50		
Rg	Gate Resistance	V_{DS}=0V, V_{GS}=0V, f=1MHz		0.8		Ω
Ciss	Input Capacitance	V_{DS}=20V, V_{GS}=0V, f=1MHz		6200		pF
Coss	Output Capacitance			437		
Crss	Reverse Transfer Capacitance			144		
$t_{d(on)}$	Turn-On Delay Time	V_{GS} =10V, R_L=15Ω V_{DD}=30V, R_G=10Ω		60		ns
t_r	Turn-On Rise Time			43		
$t_{d(off)}$	Turn-Off Delay Time			159		
t_f	Turn-Off Fall Time			47		

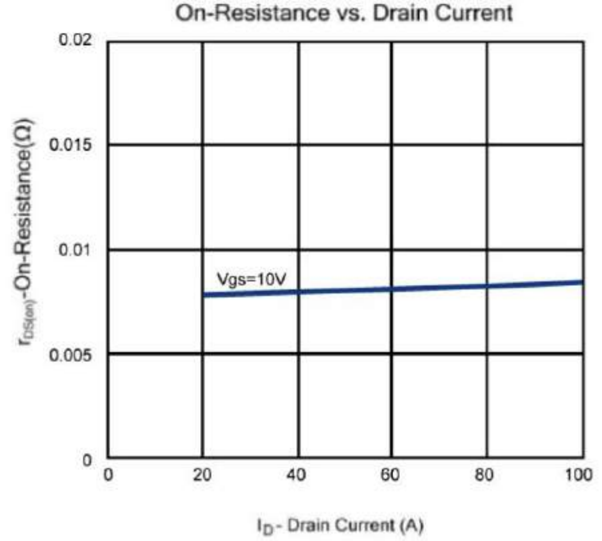
Notes: a. pulse test: pulse width≦ 300us, duty cycle≦ 2%, Guaranteed by design, not subject to production testing.

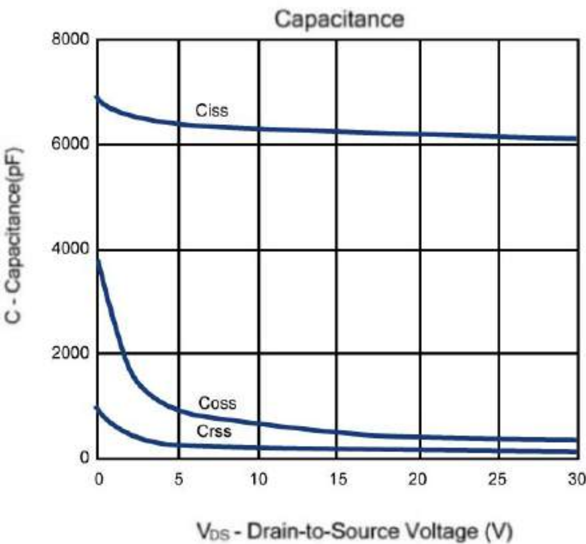
b. Matsuki reserves the right to improve product design, functions and reliability without notice.

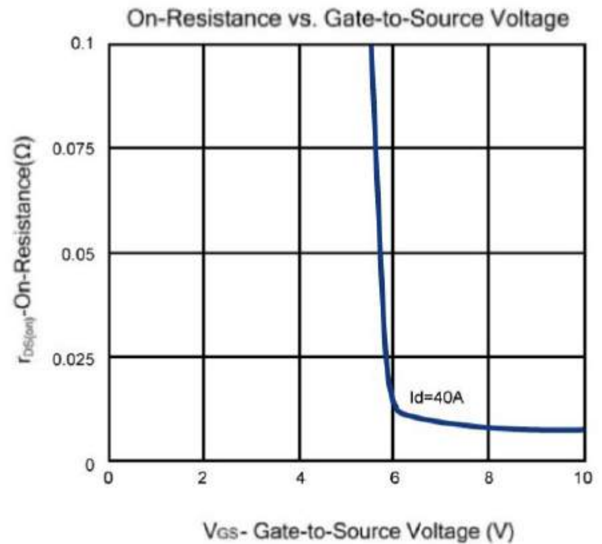
80V_{DS} / ±25V_{GS} / 70A(I_D) N-Channel Enhancement Mode MOSFET

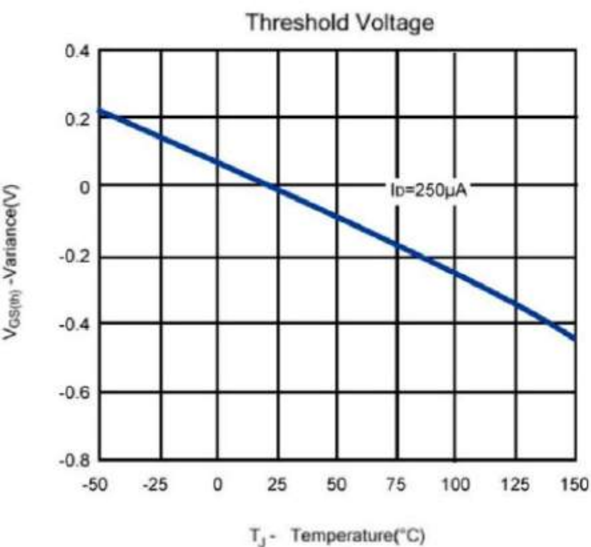
Typical Characteristics (TJ =25℃ Noted)

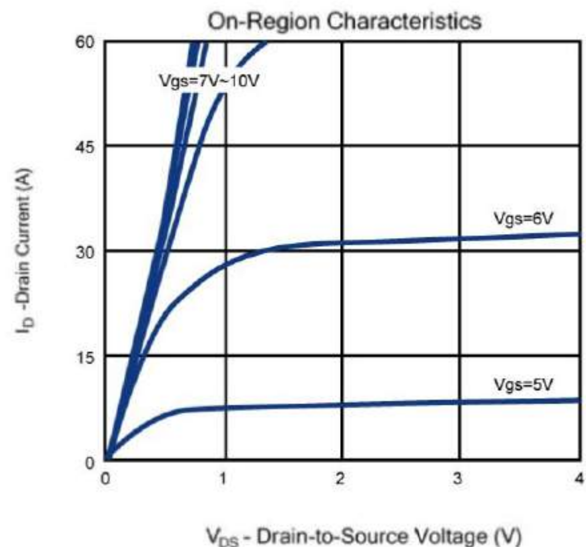






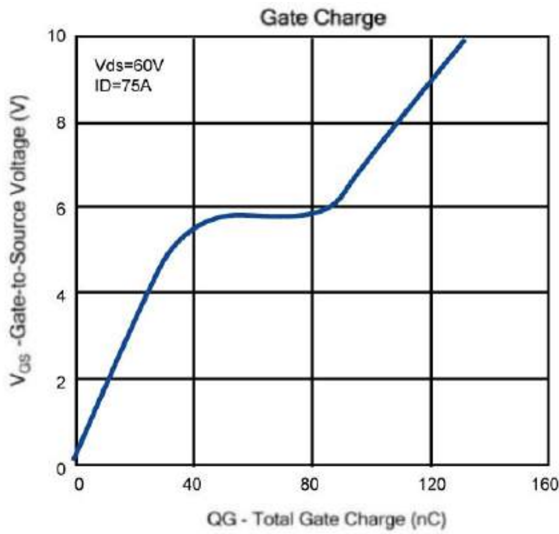


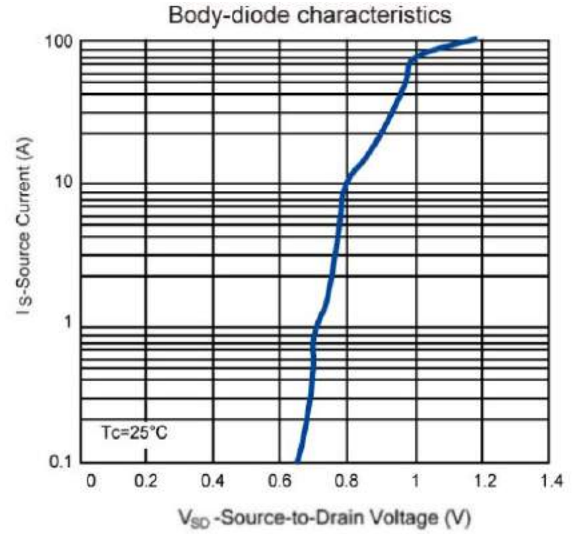


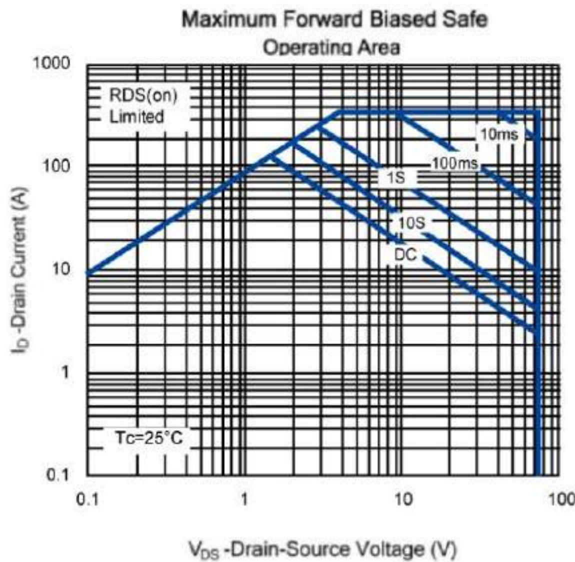


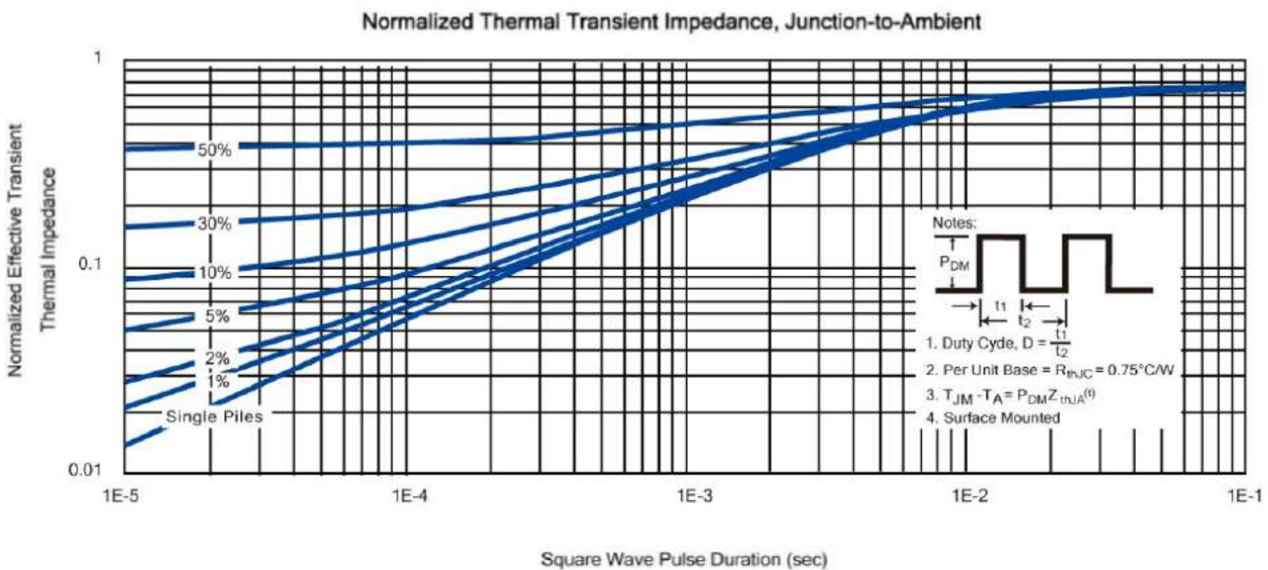
70V$_{DS}$／±25V$_{GS}$／80A(I_D) N-Channel Enhancement Mode MOSFET

Typical Characteristics (TJ =25℃ Noted)

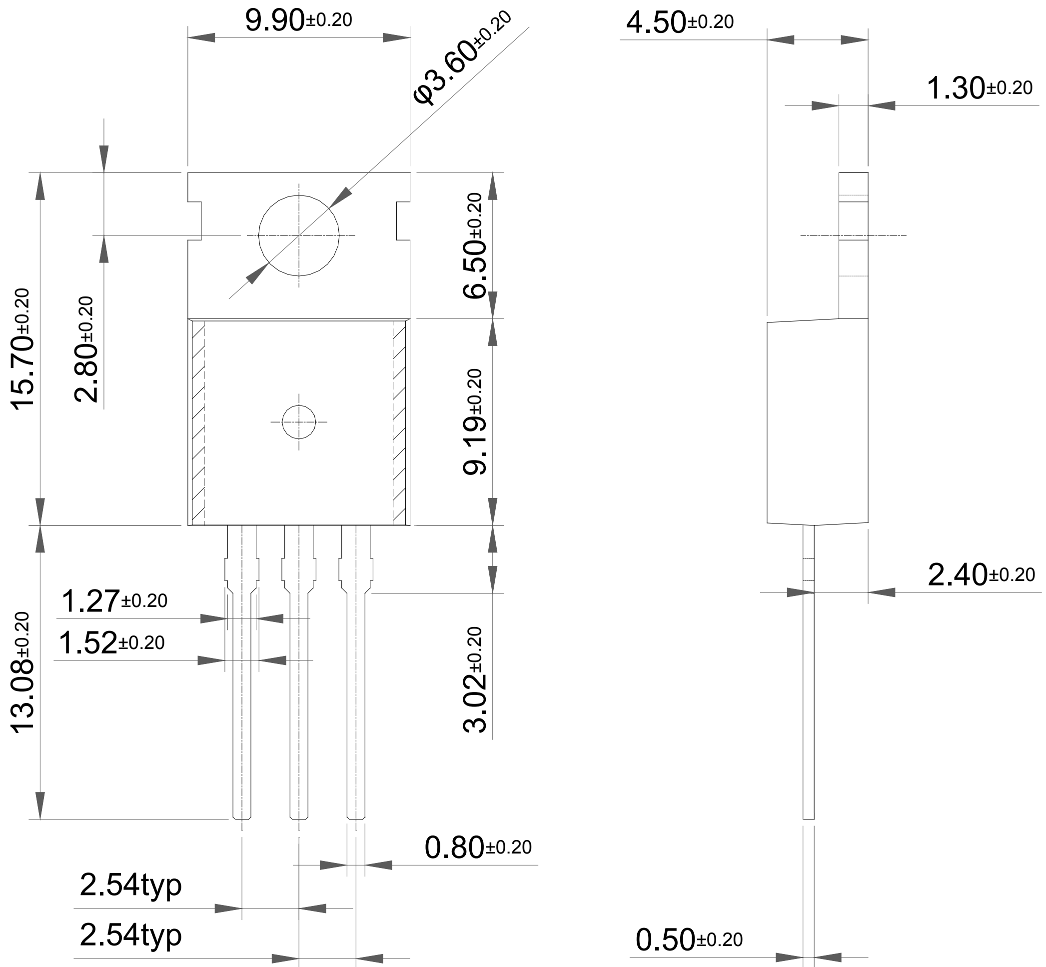








Package Dimension



TO-220 (B)