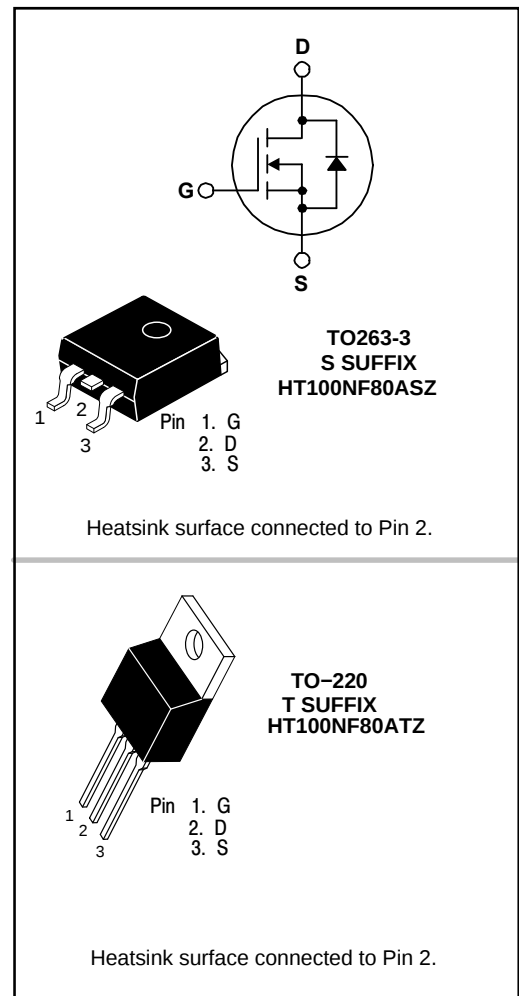


N-Channel MOSFET

Features

- $R_{DS(on)}$ (Max 0.008 Ω)@ $V_{GS}=10V$
- Gate Charge (Typical 80 nC)
- Maximum Junction Temperature Range (175 °C)



Absolute Maximum Ratings

Symbol	Parameter	Value	Units
V_{DSS}	Drain to Source Voltage	80	V
I_D	Continuous Drain Current(@ $T_C = 25\text{ }^{\circ}\text{C}$)	100	A
	Continuous Drain Current(@ $T_C = 100\text{ }^{\circ}\text{C}$)	75	A
I_{DM}	Drain Current Pulsed	300 ¹⁾	A
V_{GS}	Gate to Source Voltage	± 20	V
E_{AS}	Single Pulsed Avalanche Energy	1310 ²⁾	mJ
E_{AR}	Repetitive Avalanche Energy	173 ³⁾	mJ
dv/dt	Peak Diode Recovery dv/dt	70 ³⁾	V/ns
P_D	Total Power Dissipation(@ $T_C = 25\text{ }^{\circ}\text{C}$)	173	W
	Derating Factor above 25 °C	1.15	W/°C
T_{STG}	Operating Junction Temperature	-55 ~ 175	°C
T_J	Storage Temperature	150	°C

Notes

- ¹⁾.. Repeativity rating : pulse width limited by junction temperature
- ²⁾.. $L = 0.32\text{ mH}$, $I_{AS} = 100\text{ A}$, $V_{DD} = 50\text{ V}$, $R_G = 25\text{ }\Omega$, Starting $T_J = 25\text{ }^{\circ}\text{C}$
- ³⁾.. $I_{SD} \leq 100\text{ A}$, $di/dt \leq 300\text{ A/us}$, $V_{DD} \leq BV_{DSS}$, Starting $T_J = 25\text{ }^{\circ}\text{C}$

Thermal Characteristics

Symbol	Parameter	Value			Units
		Min.	Typ.	Max.	
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	-	-	0.87	$^{\circ}\text{C/W}$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient*	-	0.5	-	$^{\circ}\text{C/W}$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	-	-	62.5	$^{\circ}\text{C/W}$

* When mounted on the minimum pad size recommended (PCB Mount)

Source-Drain Diode Characteristics and Maximum Ratings

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
I_S	Maximum Continuous Source-Drain Diode Forward Current	$I_S = 100\text{ A}$, $V_{GS} = 0\text{ V}$ $dI_F/dt = 100\text{ A/us}$	-	-	100	A
I_{SM}	Maximum Pulsed Source-Drain Diode Forward Current		-	-	380	
V_{SD}	Diode Forward Voltage		-	-	1.5	V
t_{rr}	Reverse Recovery Time	$I_S = 100\text{ A}$, $V_{GS} = 0\text{ V}$, $dI_F/dt = 100\text{ A/us}$	-	90	-	ns
Q_{rr}	Reverse Recovery Charge		-	250	-	μC

Electrical Characteristics ($T_C = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
Off Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0 V, I _D = 250 uA	80	-	-	V
ΔBV _{DSS} / ΔT _J	Breakdown Voltage Temperature coefficient	I _D = 250 uA, referenced to 25 °C	-	0.08	-	V/°C
I _{DSS}	Drain-Source Leakage Current	V _{DS} = 80 V, V _{GS} = 0 V	-	-	10	uA
		V _{DS} = 64 V, T _C = 125 °C	-	-	100	uA
I _{GSS}	Gate-Source Leakage, Forward	V _{GS} = 20 V, V _{DS} = 0 V	-	-	100	nA
	Gate-source Leakage, Reverse	V _{GS} = -20 V, V _{DS} = 0 V	-	-	-100	nA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250 uA	2.0	-	4.0	V
R _{DS(ON)}	Static Drain-Source On-state Resis-tance	V _{GS} = 10 V, I _D = 37.5 A	-	-	0.008	Ω
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{GS} = 0 V, V _{DS} =25 V, f = 1 MHz	-	2600	3380	pF
C _{oss}	Output Capacitance		-	940	1220	
C _{rss}	Reverse Transfer Capacitance		-	210	275	
Dynamic Characteristics						
t _{d(on)}	Turn-on Delay Time	V _{DD} = 40 V, I _D = 100 A, R _G =25 Ω Pulse Width ≤ 300us, Q > 50	-	30	70	ns
t _r	Rise Time		-	225	460	
t _{d(off)}	Turn-off Delay Time		-	165	340	
t _f	Fall Time		-	155	320	
Q _g	Total Gate Charge	V _{DS} = 64 V, V _{GS} = 10 V, I _D = 100 A	-	80	105	nC
Q _{gs}	Gate-Source Charge		-	15	-	
Q _{gd}	Gate-Drain Charge(Miller Charge)		-	32	-	

Package Dimensions TO-220 AB/3

