



N-Channel MOSFET

$V_{DSS}=650V, I_D=4A, R_{DS(ON)}=2.0\Omega(\text{typ})$

Features

- $R_{DS(ON)} = 2\Omega @ V_{GS} = 10V$
- High Input Resistance
- Low On Resistance

Applications

- Electronic Ballasts
- Electronic Transformer
- High Efficiency Switch Mode Power Supplies

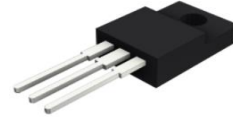
Mechanical Data

- Case: ITO-220AB Package
- Case Material: "Green" Molding Compound
UL Flammability Classification Rating 94V-0
- Halogen Free

Ordering Information

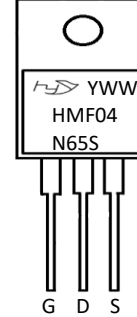
- Package: ITO-220AB
- Quantity Per Tube: 50 pcs

Package Outline

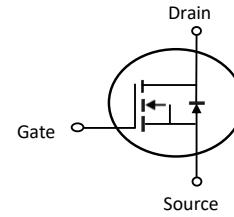


ITO-220AB Top View

Marking Information



Device Schematic



Maximum Ratings (@TA = +25°C, unless otherwise specified.)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	650	V
Gate-Source Voltage	V_{GSS}	± 30	V
Avalanche Current (Note 2.)	I_{AR}	4	A
Continuous Drain Current	I_D	4	A
Pulsed Drain Current (Note 2.)	I_{DM}	16	A
Single Pulsed Avalanche Energy (Note 3.)	E_{AS}	260	mJ
Repetitive Avalanche Energy (Note 2.)	E_{AR}	10.6	mJ
Peak Diode Recovery dv/dt (Note 4.)	dv/dt	4.5	V/ns
Power Dissipation	P_D	36	W
Junction Temperature	T_j	150	°C
Operating Temperature Range	T_{OPR}	-55 to +150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

2. Repetitive Rating : Pulse width limited by maximum junction temperature

3. $L = 30mH, I_{AS} = 4A, V_{DD} = 50V, R_G = 25\Omega, \text{Starting } T_J = 25^\circ C$

4. $I_{SD} \leq 4.4A, di/dt \leq 200A/\mu s, V_{DD} \leq BV_{DSS}, \text{Starting } T_J = 25^\circ C$



Electrical Characteristics(@TA = +25°C, unless otherwise specified.)

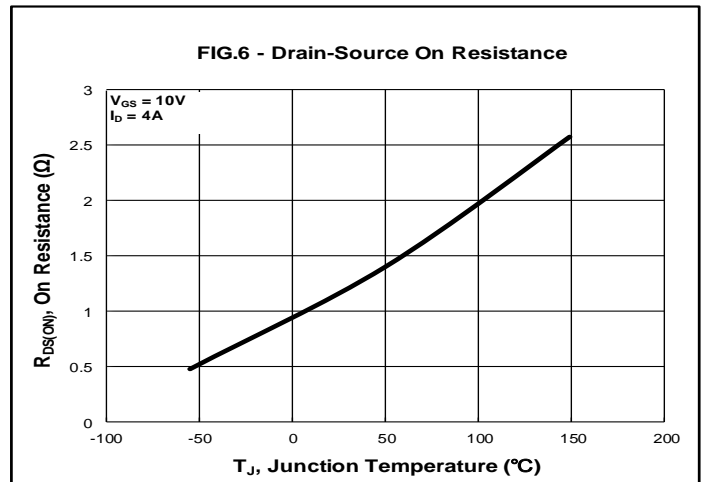
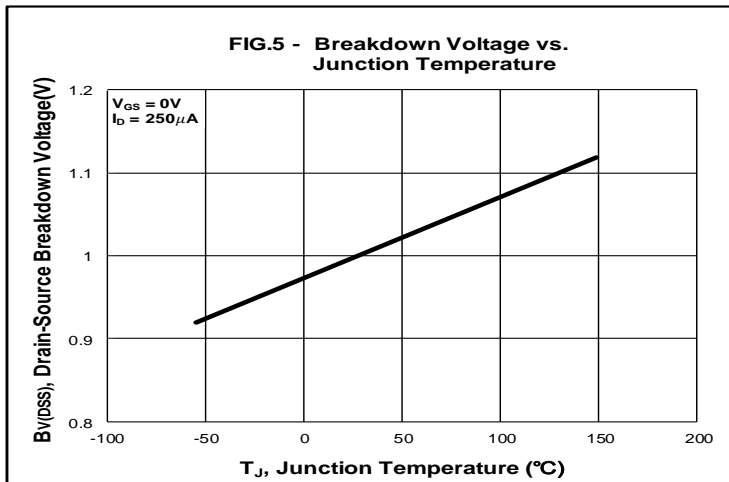
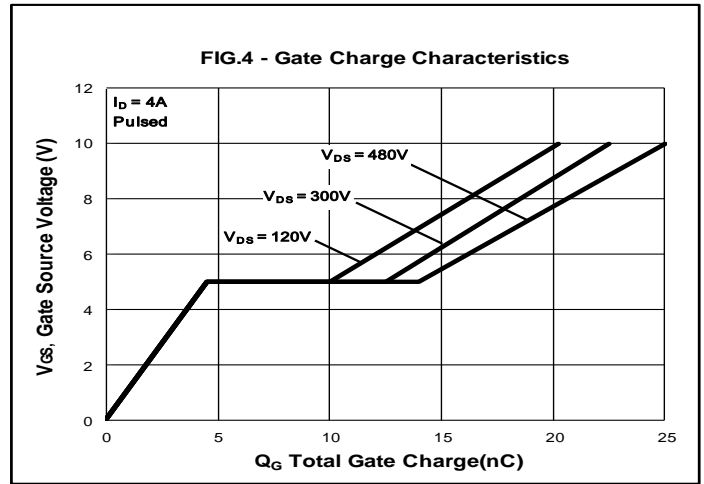
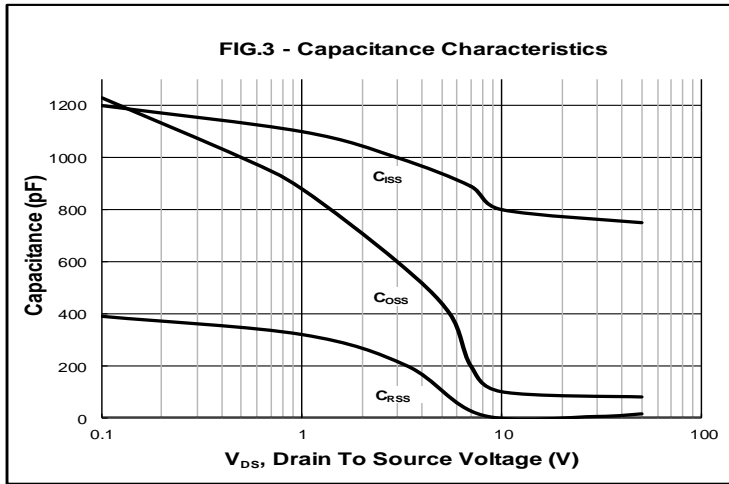
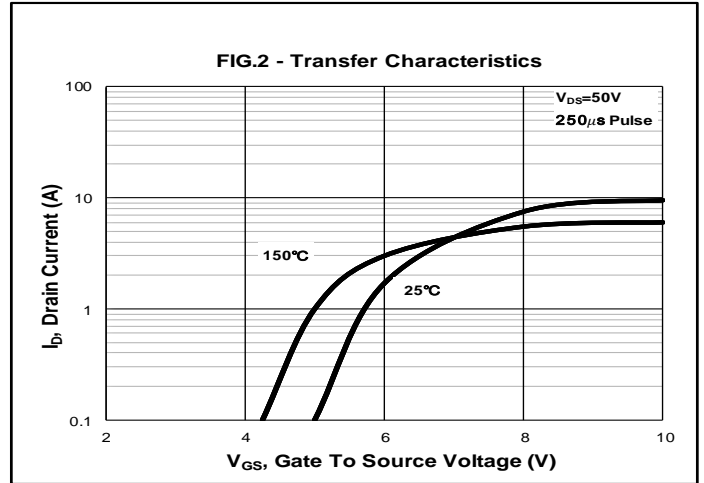
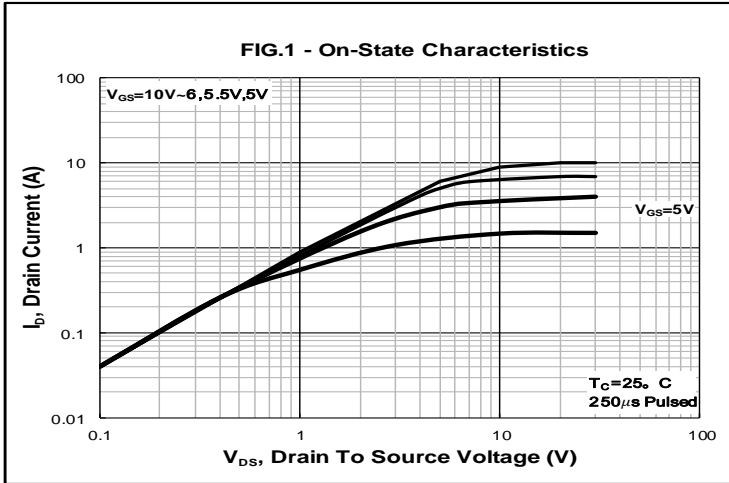
Parameter	Test Conditions	Symbol	Min	Typ	Max	Unit
OFF Characteristics						
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	BV_{DSS}	650	-	-	V
Forward Gate-Source Leakage Current	$V_{DS}=0V, V_{GS}=30V$	I_{GSS}	-	-	100	nA
Reverse Gate-Source Leakage Current	$V_{DS}=0V, V_{GS}=-30V$		-	-	-100	nA
Drain-Source Leakage Current	$V_{DS}=650V, V_{GS}=0V$	I_{DSS}	-	-	10	μA
ON Characteristics						
Gate-Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	$V_{th(GS)}$	2	-	4	V
Static Drain-Source On-State Resistance	$V_{GS}=10V, I_D=2A$	$R_{DS(ON)}$	-	2	2.4	Ω
Dynamic Characteristics						
Input Capacitance	$V_{DS}=25V, V_{GS}=0V, F=1MHz$	C_{ISS}	-	520	670	pF
Output Capacitance		C_{OSS}	-	70	90	
Reverse Transfer Capacitance		C_{RSS}	-	8	11	
Switching Characteristics						
Turn-On Delay Time	$V_{DD}=325V, I_D=4.0A,$ $R_G=25\Omega$ (Note 1,2)	$t_{D(ON)}$	-	13	35	ns
Turn-On Rise Time		t_R	-	45	100	
Turn-Off Delay Time		$t_{D(OFF)}$	-	25	60	
Turn-Off Fall Time		t_F	-	35	80	
Switching Characteristics						
Total Gate Charge	$V_{DS}=520V, V_{GS}=10V,$ $I_D=4A,$ (Note 1,2)	Q_G	-	15	20	nC
Gate-Source Charge		Q_{GS}	-	3.4	-	
Gate-Drain Charge		Q_{GD}	-	7.1	-	
Drain-Source Diode Characteristics And Maximum Ratings						
Drain-Source Diode Forward Voltage	$I_S=4A, V_{GS}=0V$	V_{SD}	-	-	1.4	V
Continuous Drain-Source Diode Forward Current	-	I_S	-	-	4.4	A
Pulsed Drain-Source Diode Forward Current	-	I_{SM}	-	-	17.6	A
Reverse Recovery Time	$V_{GS}=0V, I_S=4A,$ $dI_F/dt=100A/\mu s$ (Note 1)	t_{RR}	-	250	-	ns
Reverse Recovery Charge		Q_{RR}	-	1.5	-	μC

Notes: 1. Pulse Test : Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$

2. Essentially independent of operating temperature

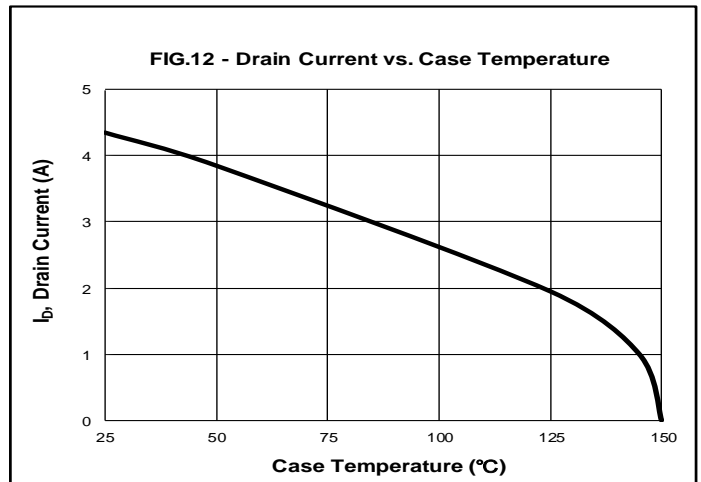
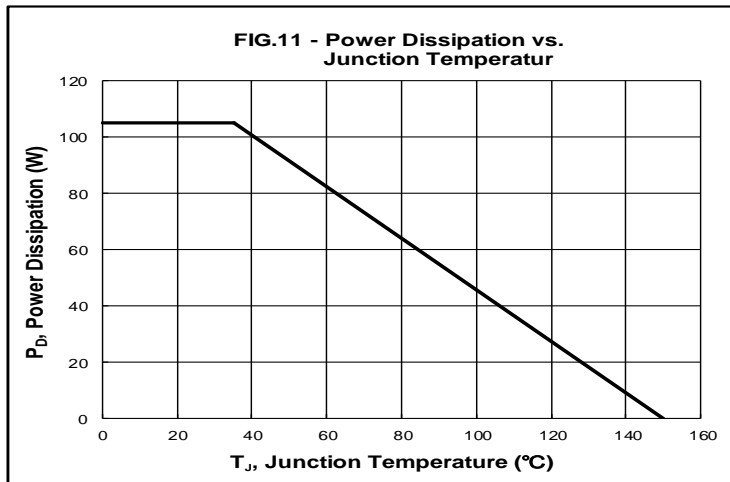
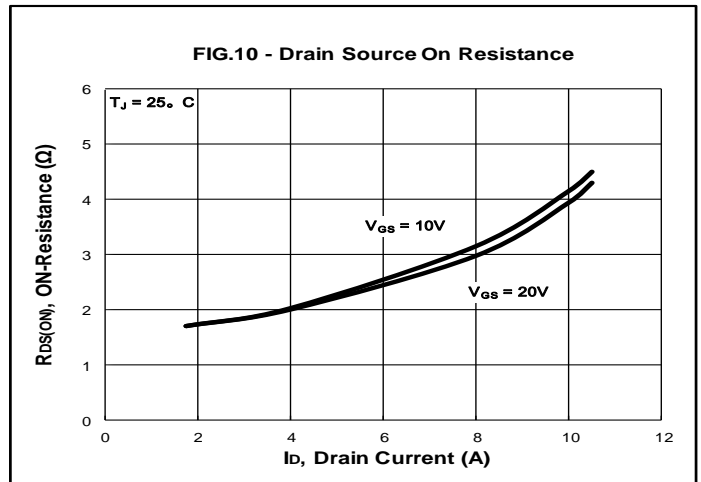
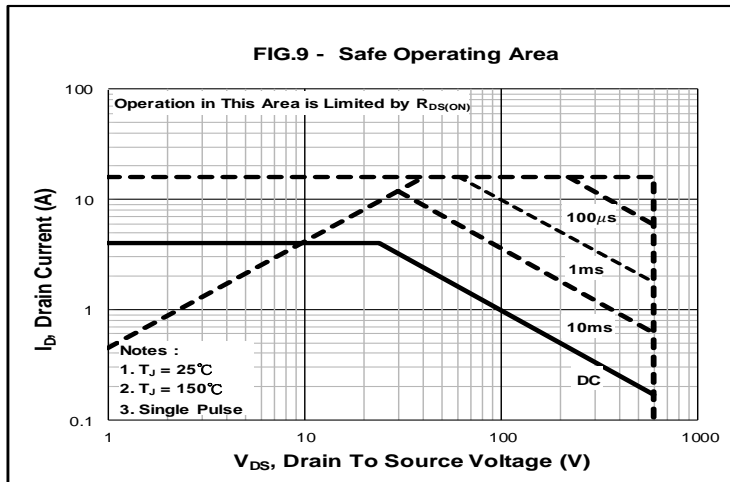
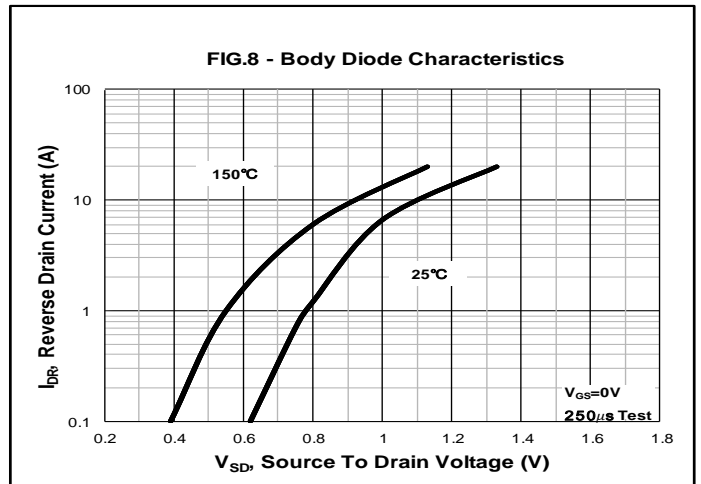
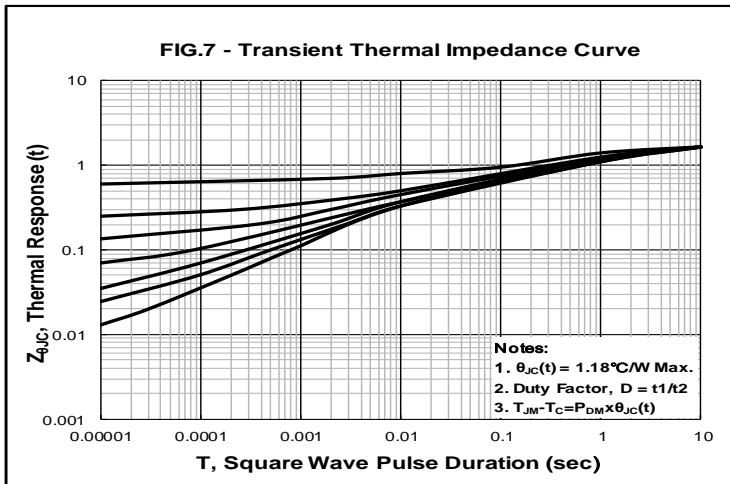


Rating and Characteristic Curves





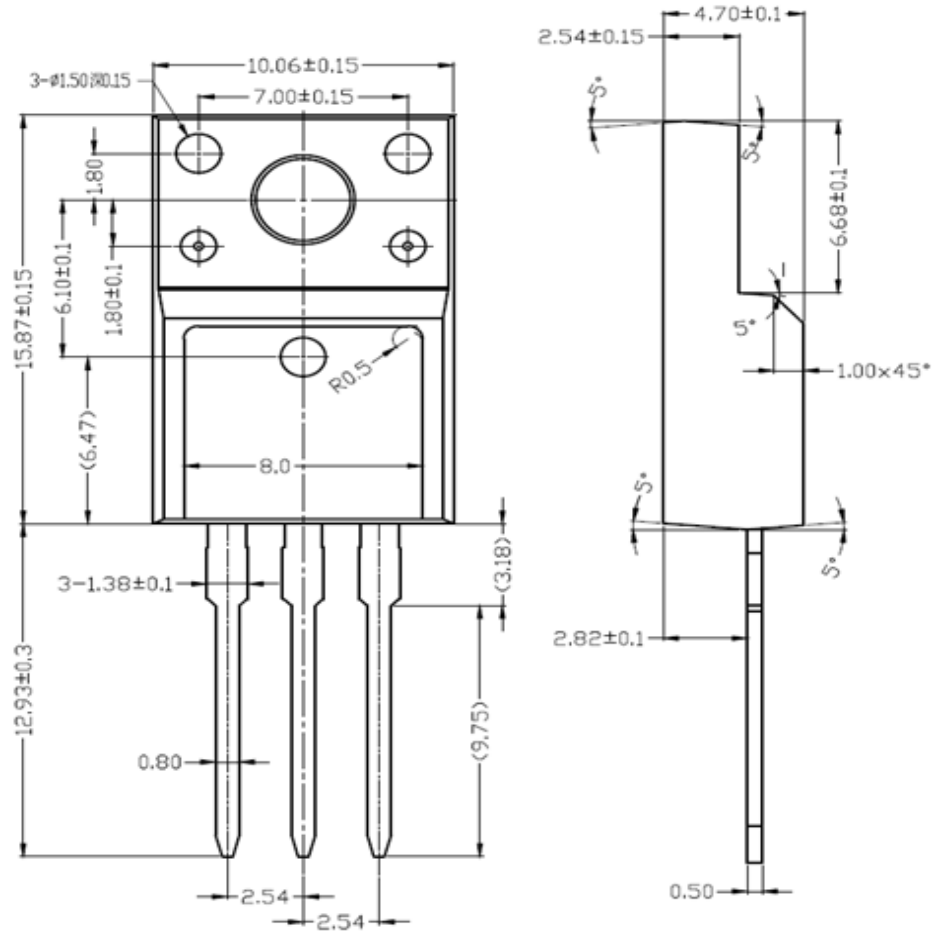
Rating and Characteristic Curves





Package Outline Dimensions

ITO-220AB





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