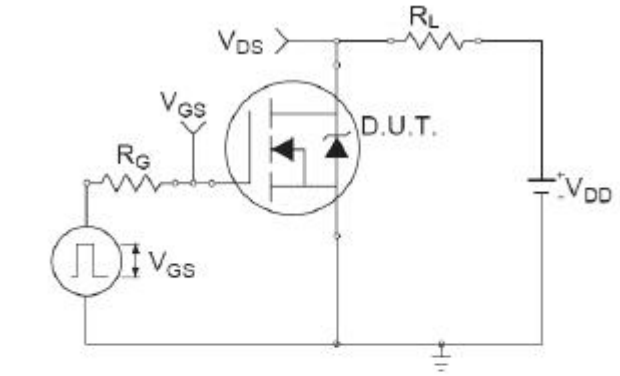
Features

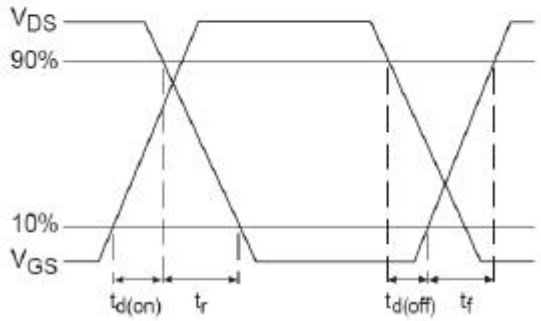
- V$_{DSS}$=40V / V$_{GSS}$=±20V / I$_D$=130A
  R$_{DS(ON)}$=4mΩ(max.)@V$_{GS}$=10V
- High Dense Cell Design
- Reliable and Rugged
- Advanced trench process technology
- High Density Cell Design For Ultra Low On-Resistance

Applications

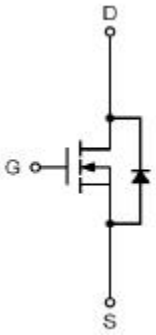
- Power Management in Inverter System
- Synchronous Rectification

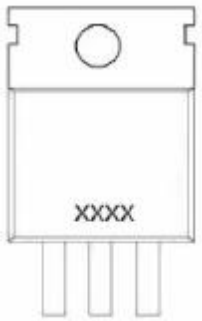
Switching Time Test Circuit and Waveforms





Pin Description





Marking and pin Assignment

TO-220-3L top view

Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
JTM1404B	JTM1404B	TO-220-3L	-	-	-

Absolute Maximum Ratings (T_A=25℃ unless otherwise noted)

Symbol	Parameter		Typical	Unit
V_{DSS}	Drain-Source Voltage		40	V
V_{GSS}	Gate –Source Voltage		±20	V
I_D	Continuous Drain Current	T_C=100℃	100	A
		T_C=25℃	130	A
I_{DP}	300us Pulsed Drain Current Tested		300	A
I_S	Diode Continuous Forward Current		30	A
T_J	Operating Junction Temperature		150	℃
T_{STG}	Storage Temperature Range		-55 ~ 150	℃

Electrical Characteristics (TA=25℃ unless otherwise noted)

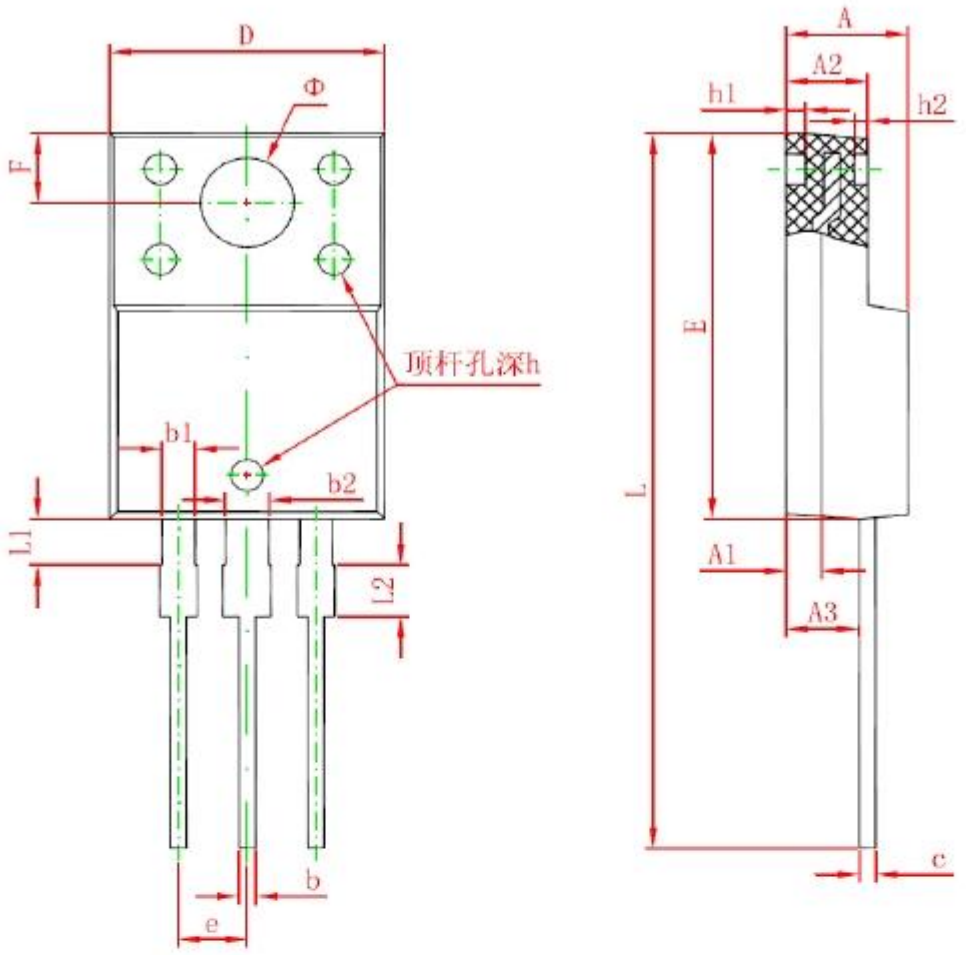
Symbol	Parameter	Test Conditions	Min.	Typ	Max.	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V,I_D=250uA	40			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=32V,V_{GS}=0V			100	uA
		T_J=85℃			1	
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=250uA	1	2	3	V
I_{GSS}	Gate Leakage Current	V_{GS}= ±20V, V_{DS}=0V			±100	nA
$R_{DS(on)}$ [1]	Drain-Source On-Resistance	V_{GS}=10V, I_D=30A		3.2	4	mΩ
Diode Characteristics						
V_{SD1}	Diode Forward Voltage	I_{SD}=30A,V_{GS}=0V		0.85	1.3	V
t_{rr}	Reverse Recovery Time	I_{SD}=30A,		50		ns
Q_{rr}	Reverse Recovery Charge	dI_{SD}/dt=100A/us		90		nC
Dynamic Characteristics [2]						
R_G	Gate Resistance	V_{GS}=0V, V_{DS}=0V, Frequency=1MHz		1.5		Ω
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=20V Frequency=1MHz		4500		pF
C_{oss}	Output Capacitance			800		
C_{rss}	Reverse Transfer Capacitance			240		
$t_{d(on)}$	Turn-On Delay Time	V_{DD}=20V, R_L=30Ω I_D=1.0A, V_{GEN}=10V R_G=6Ω		19		ns
t_r	Turn-On Rise Time			14		
$t_{d(off)}$	Turn-Off Delay Time			60		
t_f	Turn-Off Fall Time			35		
Gate Charge Characteristics [2]						
Q_g	Total Gate Charge	V_{DS}=20V, V_{GS}=10V I_D=30A		85		nC
Q_{gs}	Gate-Source Charge			30		
Q_{gd}	Gate-Drain Charge			23		

Note:

1: Pulse test ; pulse width ≦ 300ns, duty cycle ≦ 2%.

2: Guaranteed by design, not subject to production testing.

TO-220F PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.300	4.700	0.169	0.185
A1	1.300 REF.		0.051 REF.	
A2	2.800	3.200	0.110	0.126
A3	2.500	2.900	0.098	0.114
b	0.500	0.750	0.020	0.030
b1	1.100	1.350	0.043	0.053
b2	1.500	1.750	0.059	0.069
c	0.500	0.750	0.020	0.030
D	9.960	10.360	0.392	0.408
E	14.800	15.200	0.583	0.598
e	2.540 TYP.		0.100 TYP.	
F	2.700 REF.		0.106 REF.	
Φ	3.500 REF.		0.138 REF.	
h	0.000	0.300	0.000	0.012
h1	0.800 REF.		0.031 REF.	
h2	0.500 REF.		0.020 REF.	
L	28.000	28.400	1.102	1.118
L1	1.700	1.900	0.067	0.075
L2	1.900	2.100	0.075	0.083

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