

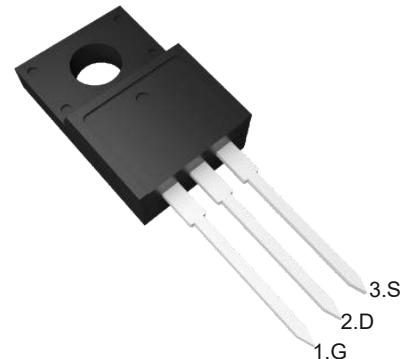
# PJM65H07NTF

## N-Channel Enhancement Mode Power MOSFET

### Features

- Fast Switching
- Low Reverse transfer capacitances
- Low gate charge and low  $R_{DS(on)}$
- $V_{DS} = 650V, I_D = 7A$
- $R_{DS(on)} < 1.25\Omega @ V_{GS} = 10V$

TO-220F

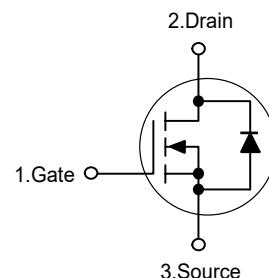


1.Gate 2.Drain 3.Source

### Applications

- Power switch circuit of adaptor and charger

### Schematic diagram



### Absolute Maximum Ratings

Ratings at 25°C case temperature unless otherwise specified.

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	650	V
Gate-Source Voltage	$V_{GS}$	$\pm 30$	V
Drain Current-Continuous	$I_D$	7	A
Drain Current-Pulsed <sup>Note1</sup>	$I_{DM}$	28	A
Single Pulse Avalanche Energy <sup>Note4</sup>	$E_{AS}$	500	mJ
Avalanche Energy, Repetitive <sup>Note1</sup>	$E_{AR}$	54	mJ
Avalanche Current <sup>Note1</sup>	$I_{AR}$	3.3	A
Maximum Power Dissipation	$P_D$	40	W
Junction Temperature	$T_J$	150	°C
Storage Temperature Range	$T_{STG}$	-55 to +150	°C

### Thermal Characteristics

Thermal Resistance, Junction-to-Ambient <sup>Note2</sup>	$R_{\theta JA}$	100	°C/W
Maximum Junction-to-Case <sup>Note2</sup>	$R_{\theta JC}$	3.13	°C/W



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### Electrical Characteristics

( $T_C=25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{(\text{BR})\text{DSS}}$	$V_{GS}=0\text{V}, I_D=250\mu\text{A}$	650	--	--	V
Zero Gate Voltage Drain Current	$I_{\text{DSS}}$	$V_{DS}=650\text{V}, V_{GS}=0\text{V}$	--	--	1	$\mu\text{A}$
Gate-Body Leakage Current	$I_{GSS}$	$V_{GS}=\pm 30\text{V}, V_{DS}=0\text{V}$	--	--	$\pm 100$	nA
Gate Threshold Voltage <sup>Note3</sup>	$V_{GS(\text{th})}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	2	--	4	V
Drain-Source On-Resistance <sup>Note3</sup>	$R_{DS(\text{on})}$	$V_{GS}=10\text{V}, I_D=3.5\text{A}$	--	--	1.25	$\Omega$
Forward Transconductance <sup>Note3</sup>	$g_{FS}$	$V_{DS}=15\text{V}, I_D=3.5\text{A}$	--	6.5	--	S
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{iss}$	$V_{DS}=25\text{V}, V_{GS}=0\text{V}, f=1\text{MHz}$	--	1080	--	pF
Output Capacitance	$C_{oss}$		--	93	--	pF
Reverse Transfer Capacitance	$C_{rss}$		--	37.5	--	pF
<b>Switching Characteristics</b>						
Turn-on Delay Time	$t_{d(on)}$	$V_{DS}=325\text{V}, I_D=7\text{A}, V_{GS}=10\text{V}, R_G=9.1\Omega$	--	11	--	nS
Turn-on Rise Time	$t_r$		--	10	--	nS
Turn-off Delay Time	$t_{d(off)}$		--	36	--	nS
Turn-off Fall Time	$t_f$		--	18	--	nS
Total Gate Charge	$Q_g$	$V_{DS}=325\text{V}, I_D=7\text{A}, V_{GS}=10\text{V}$	--	23	--	nC
Gate-Source Charge	$Q_{gs}$		--	5	--	nC
Gate-Drain Charge	$Q_{gd}$		--	8	--	nC
Body Diode Reverse Recovery Time	$t_{rr}$	$I_S=7\text{A}, V_{GS}=0, T_J=25^\circ\text{C}$ $dI/dt=100\text{A}/\mu\text{s}$	--	280	--	nS
Body Diode Reverse Recovery Charge	$Q_{rr}$		--	1400	--	$\mu\text{C}$
<b>Source-Drain Diode Characteristics</b>						
Diode Forward Voltage <sup>Note3</sup>	$V_{SD}$	$V_{GS}=0\text{V}, I_S=7\text{A}$	--	--	1.5	V
Diode Forward Current <sup>Note2</sup>	$I_S$		--	--	7	A

Note: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.

2. Surface Mounted on FR4 Board,  $t \leq 10$  sec.

3. Pulse Test: Pulse width  $\leq 380\mu\text{s}$ , duty cycle  $\leq 2\%$ .

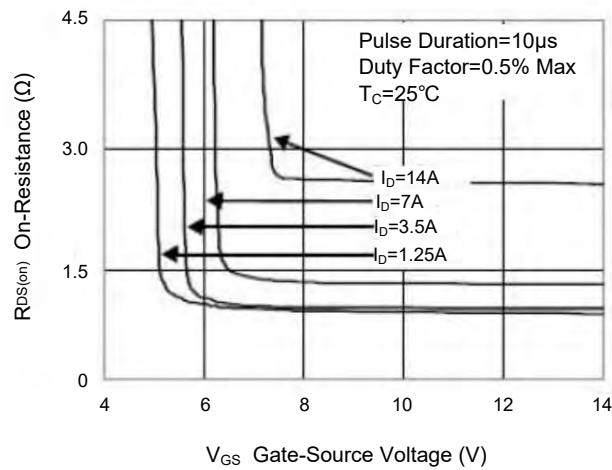
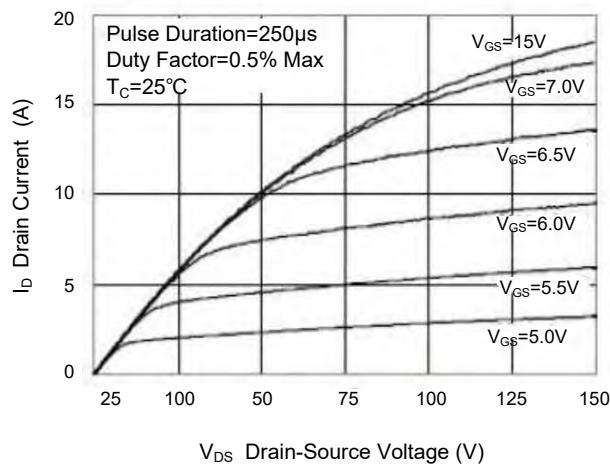
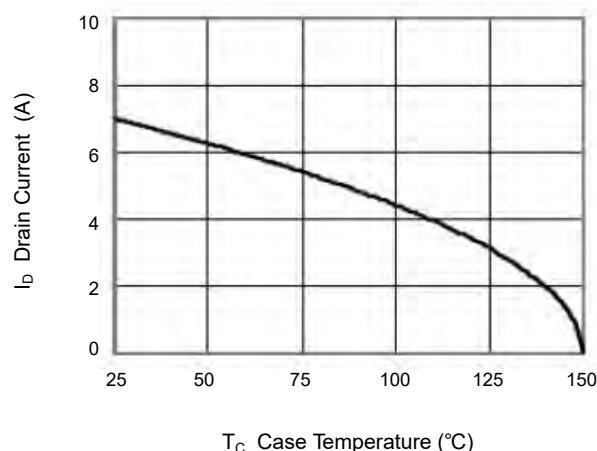
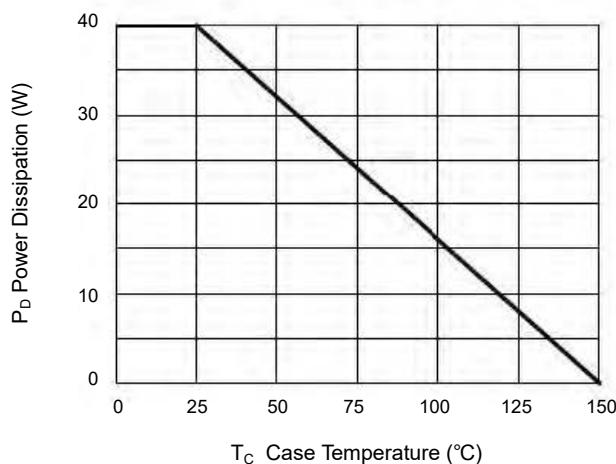
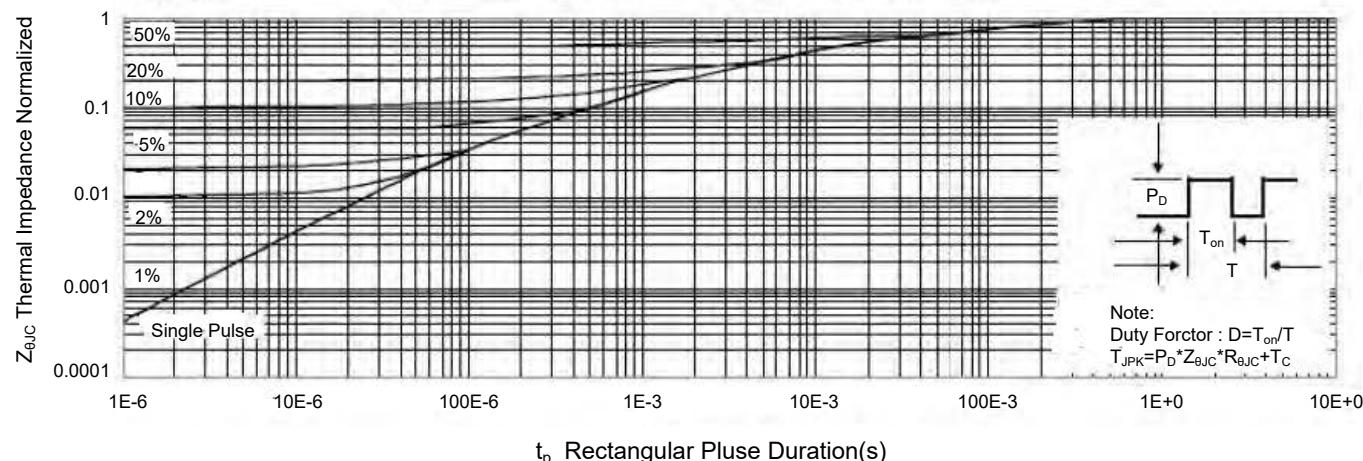
4.  $E_{AS}$  Condition:  $L=10\text{mH}$ ,  $I_D=10.3\text{A}$ , Start  $T_J=25^\circ\text{C}$ .



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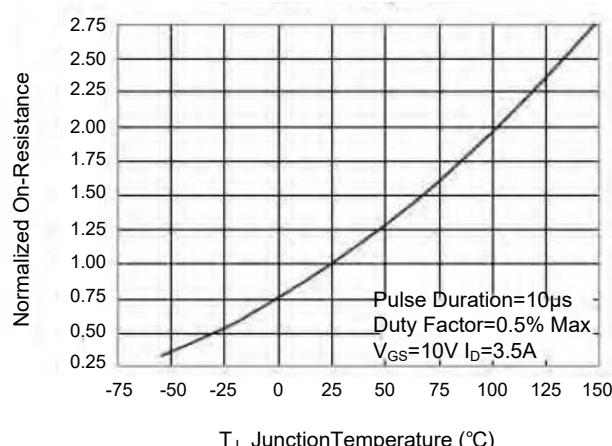
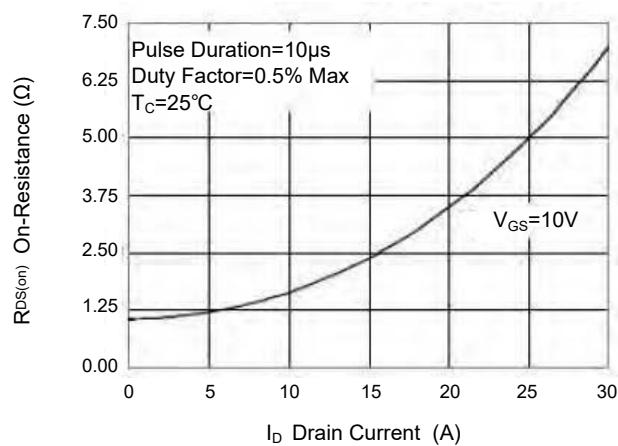
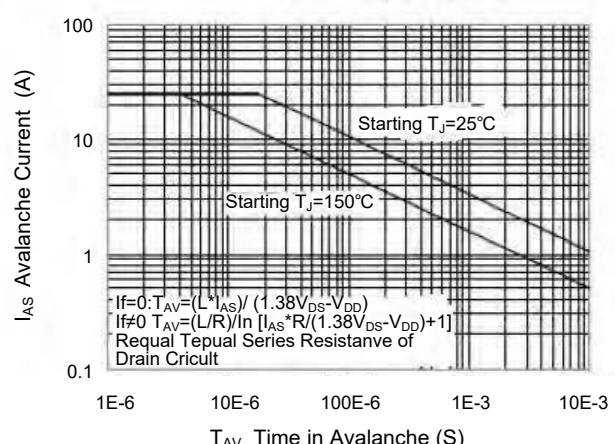
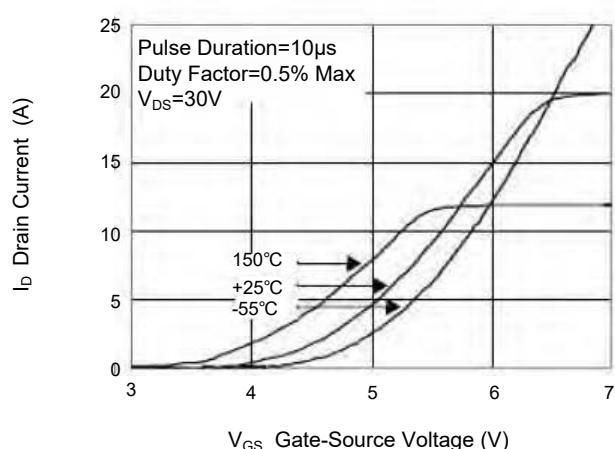
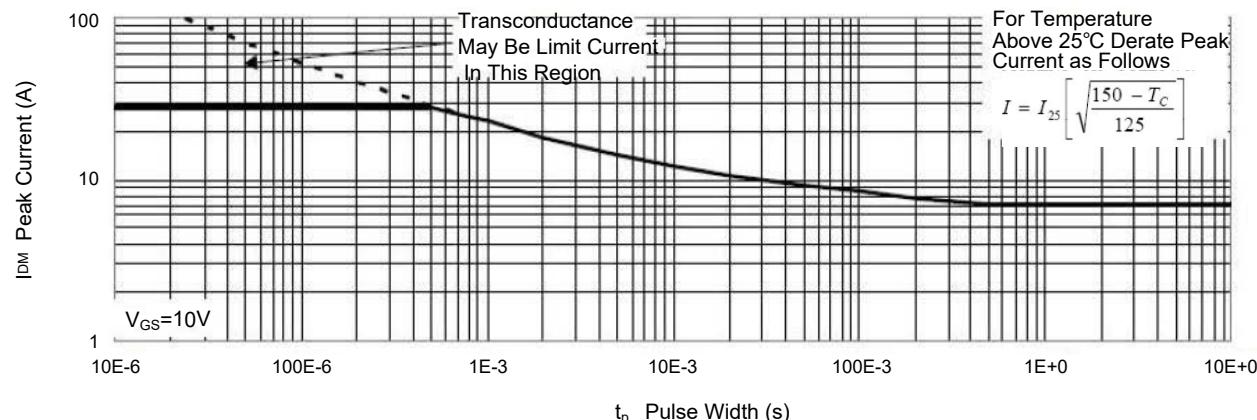
### Typical Characteristic Curves





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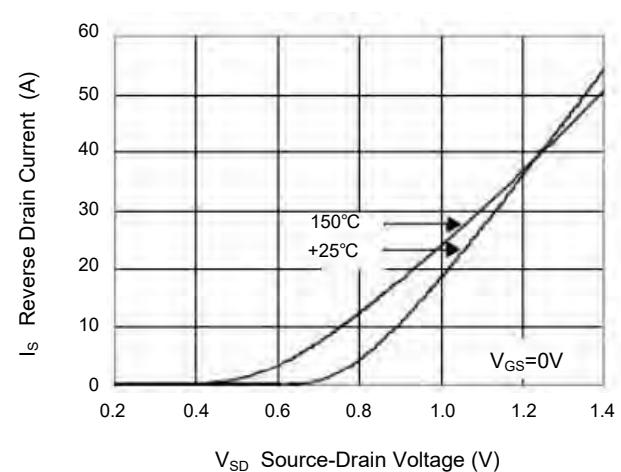
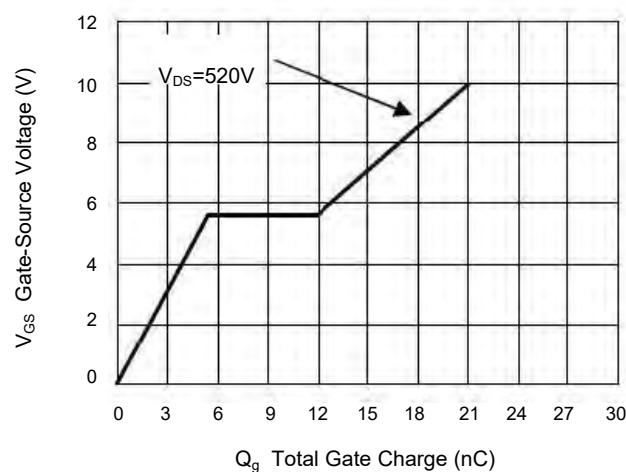
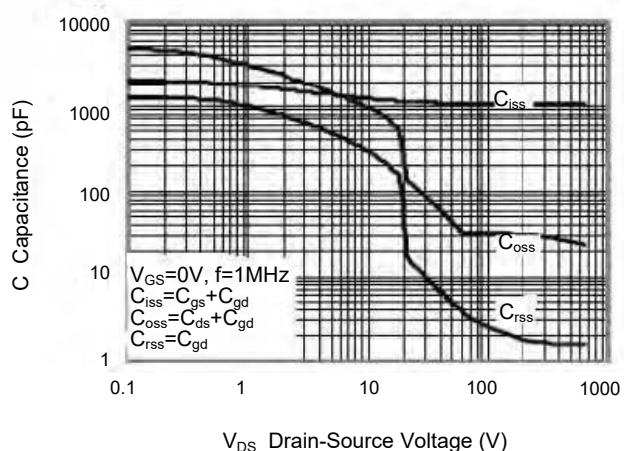
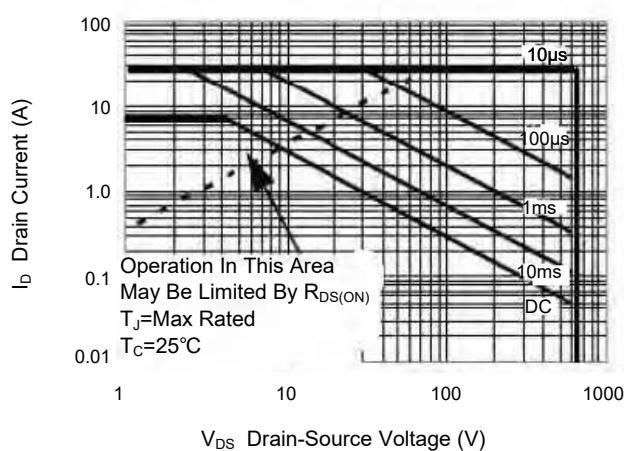
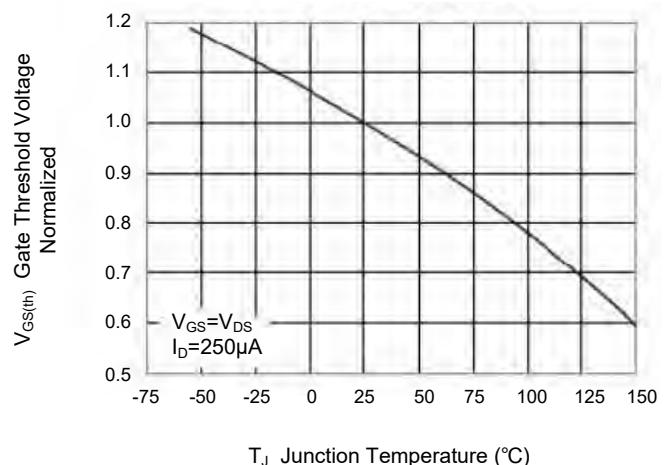
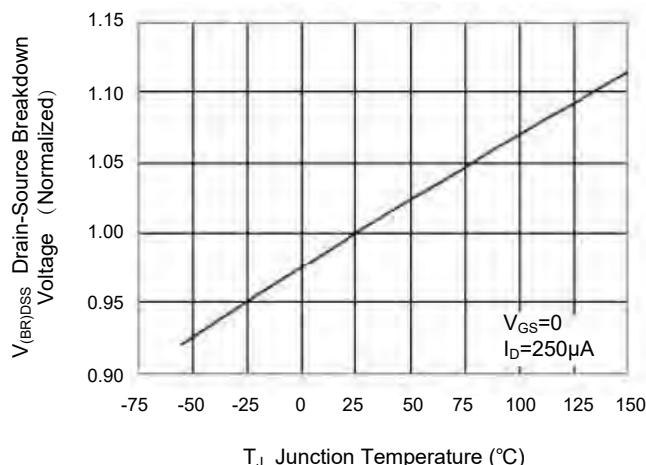
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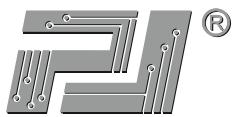




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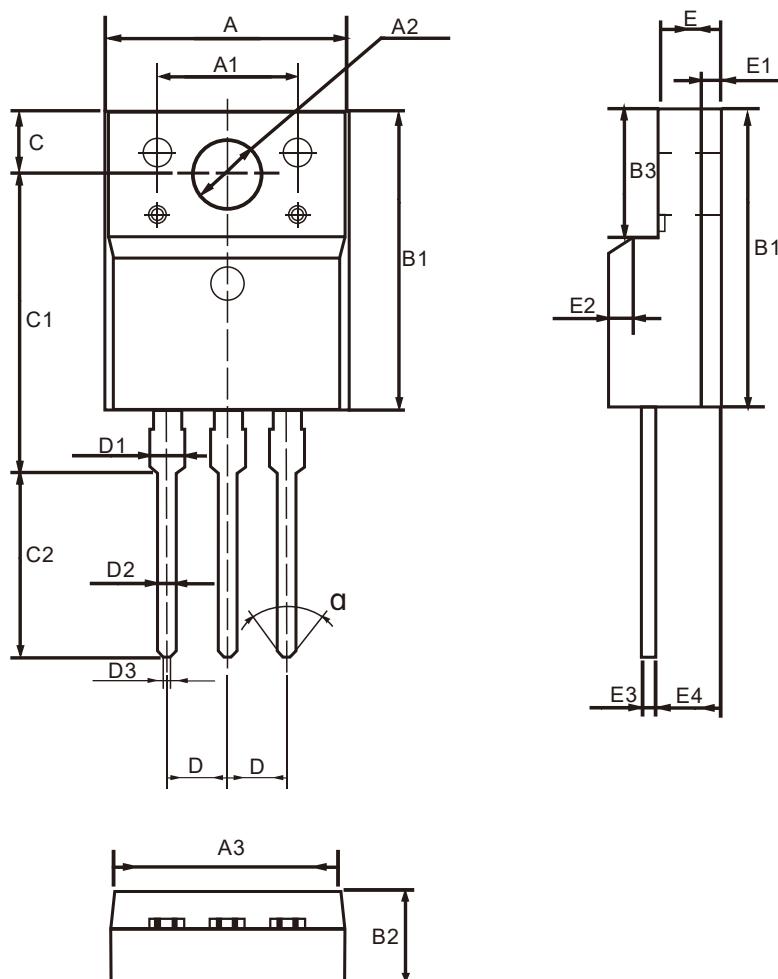




## Package Outline

TO-220F

Dimensions in mm



TO-220F Package Dimensions

UNIT : mm

SYMBOL	min	nom	max	SYMBOL	min	nom	max
A	9.80		10.60	D		2.54	
A1		7.00		D1	1.15		1.55
A2	2.90		3.40	D2	0.60		1.00
A3	9.10		9.90	D3	0.20		0.50
B1	15.40		16.40	E	2.24		2.84
B2	4.35		4.95	E1		0.70	
B3	6.00		7.40	E2		1.0 × 45°	
C	3.00		3.70	E3	0.35		0.65
C1	15.00		17.00	E4	2.30		3.30
C2	8.80		10.80	α (度)		30°	