P7F60HP2

Power MOSFETs
600V, 7A, N-channel

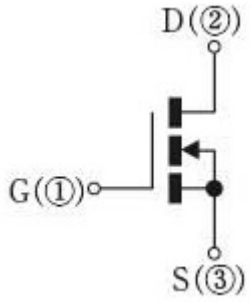
Feature

- N-channel
- High Voltage
- High Speed Switching
- Low Capacitance
- High Avalanche Durability, High di/dt Durability
- Pb free terminal
- RoHS:Yes

OUTLINE

Package (House Name): FTO-220AG
Package (JEITA Code): SC-91

Equivalent circuit



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Absolute Maximum Ratings (unless otherwise specified : Tc=25℃)

Item	Symbol	Conditions	Ratings	Unit
Storage temperature	Tstg		-55 to 150	℃
Channel tempertature	Tch		150	℃
Drain-source voltage	V_{DSS}		600	V
Gate-source voltage	V_{GSS}		±30	V
Continuous drain current(DC)	I_D		7	A
Continuous drain current(Peak)	I_{DP}	Pulse width 10μs, duty=1/100	28	A
Continuous source current(DC)	Is		7	A
Total power dissipation	P_T		79	W
Repetitive avalanche current	I_{AR}	Starting Tch=25℃ Tch≦150℃	7	A
Single avalanche energy	E_{AS}	Starting Tch=25℃ Tch≦150℃	50	mJ
Repetitive avalanche energy	E_{AR}	Starting Tch=25℃ Tch≦150℃	5	mJ
Drain-source diode di/dt strength	di/dt	Is=7A, Tc=25℃	350	A/μs
Dielectric strenght	Vdis	Terminals to case, AC1min	2	kV
Mounting torque	TOR	(Recommended torque：0.3N･m)	0.5	N･m

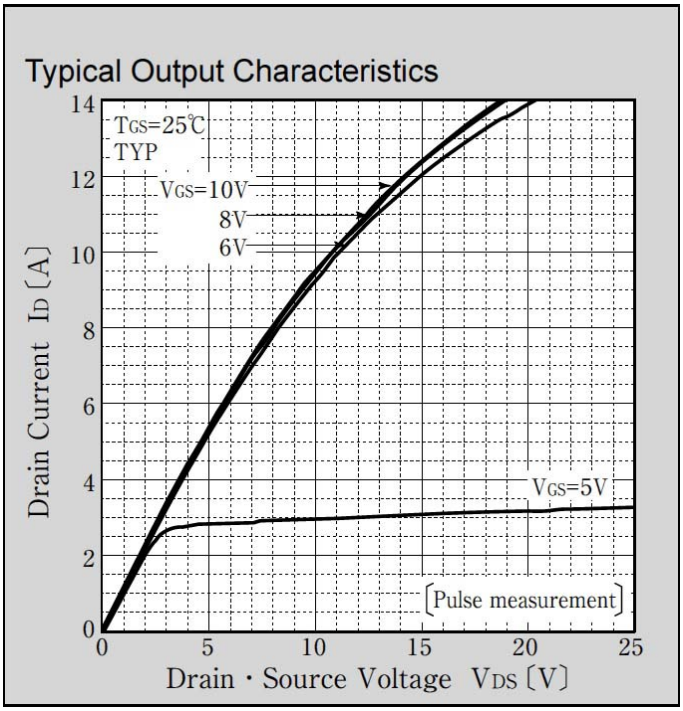
※ ：See the original Specifications

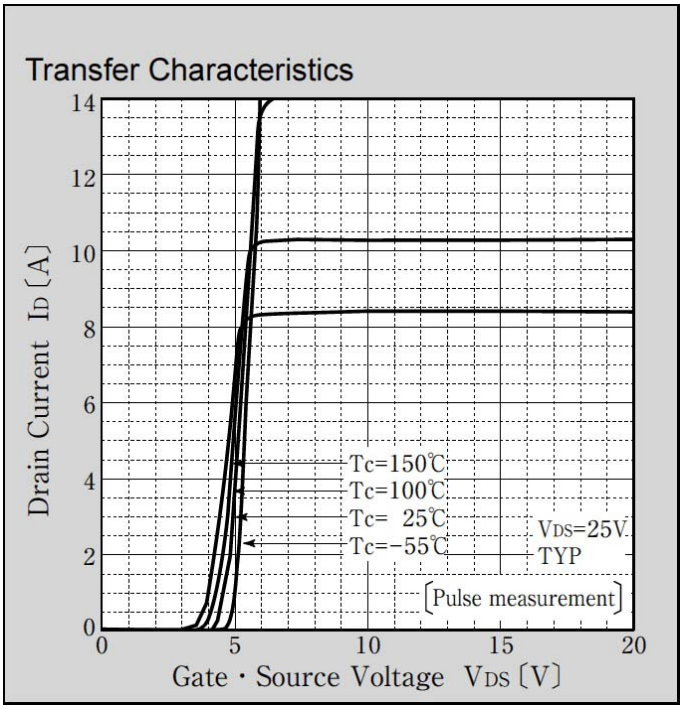
Electrical Characteristics (unless otherwise specified : Tc=25°C)

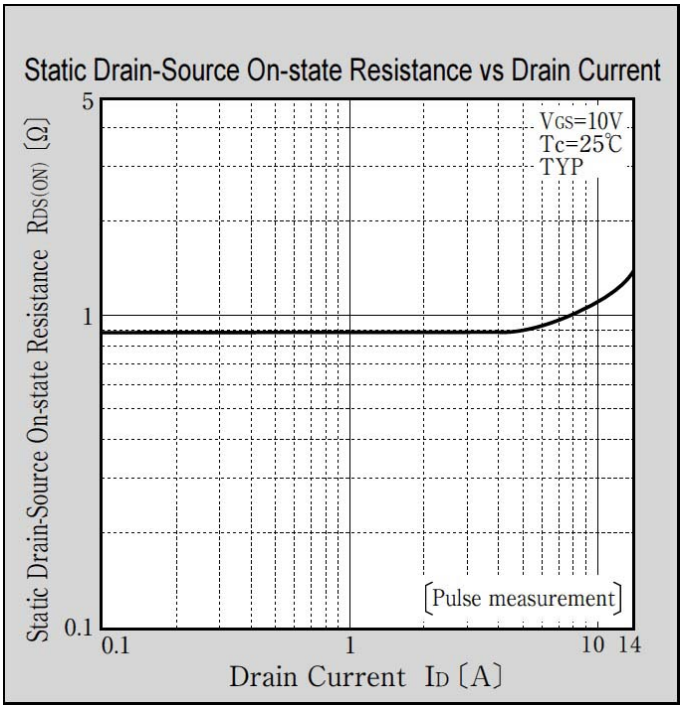
Item	Symbol	Conditions	Ratings			Unit
			MIN	TYP	MAX	
Drain-Source breakdown voltage	$V_{(BR)DSS}$	ID=1mA, VGS=0V	600			V
Zero gate voltage drain current	I_{DSS}	VDS=600V, VGS=0V			100	μA
Gate-source leakage current	I_{GSS}	VGS=±25V, VDS=0V			±10	μA
Forward transconductance	g_{fs}	ID=3.5A, VDS=10V	4.5	9		S
Static drain-source on-state resistance	$R_{DS(ON)}$	ID=3.5A, VGS=10V		0.88	1.05	Ω
Gate threshold voltage	Vth	ID=1mA, VDS=10V	3	3.75	4.5	V
Source-drain diode forward voltage	V_{SD}	IS=3.5A, VGS=0V			1.5	V
Thermal resistance	Rth(j-c)	Junction to case			1.58	°C/W
Total gate charge	Qg	VDD=400V, VGS=10V, ID=7A		19		nC
Input capacitance	Ciss	VDS=50V, VGS=0V, f=1MHz		810		pF
Reverce transfer capacitnce	Crss	VDS=50V, VGS=0V, f=1MHz		5		pF
Output capacitance	Coss	VDS=50V, VGS=0V, f=1MHz		75		pF
Turn-on delay time	td(on)	ID=3.5A, RL=43Ω, VDD=150V, Rg=50Ω, VGS(+)=10V, VGS(-)=0V		21		ns
Rise time	tr	ID=3.5A, RL=43Ω, VDD=150V, Rg=50Ω, VGS(+)=10V, VGS(-)=0V		23		ns
Turn-off delay time	td(off)	ID=3.5A, RL=43Ω, VDD=150V, Rg=50Ω, VGS(+)=10V, VGS(-)=0V		70		ns
Fall time	tf	ID=3.5A, RL=43Ω, VDD=150V, Rg=50Ω, VGS(+)=10V, VGS(-)=0V		27		ns

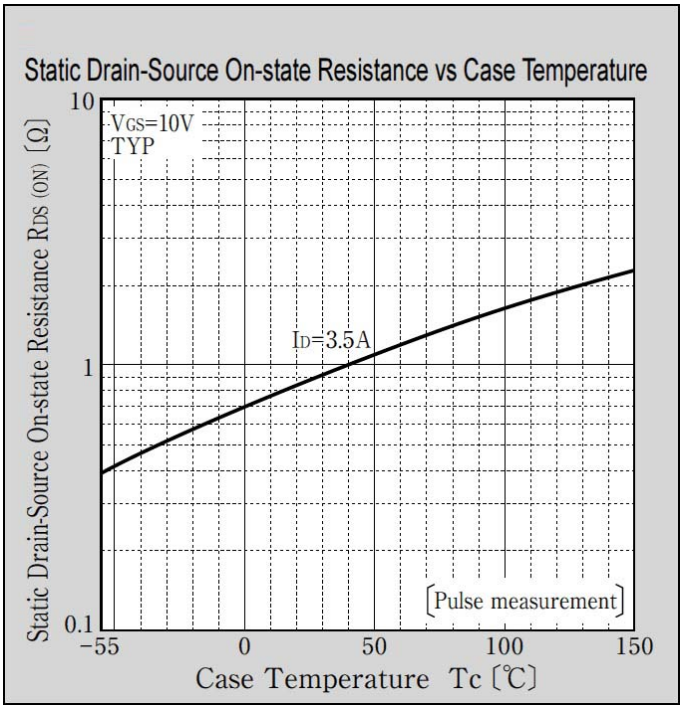
※ ：See the original Specifications

CHARACTERISTIC DIAGRAMS

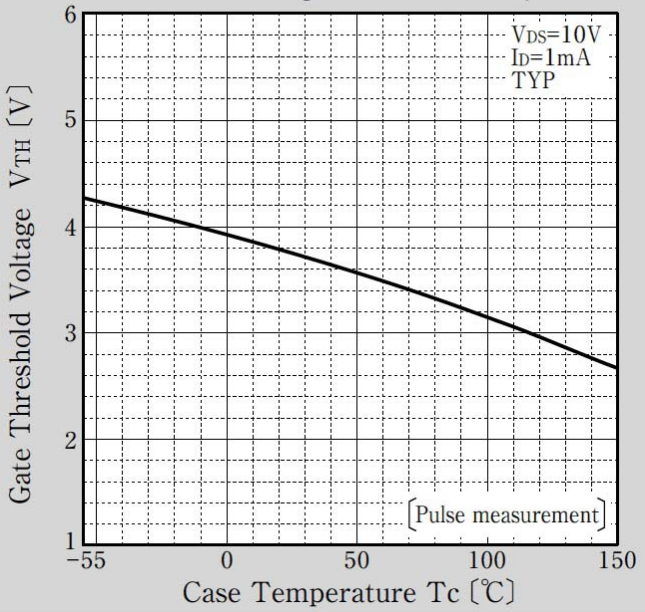




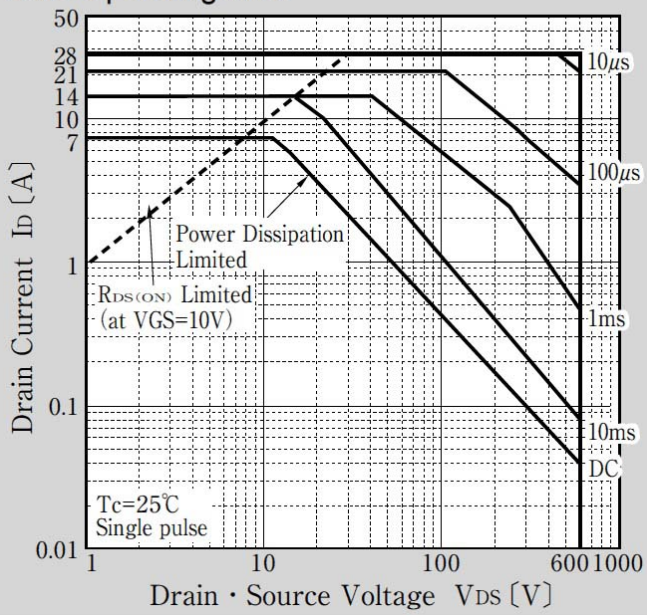




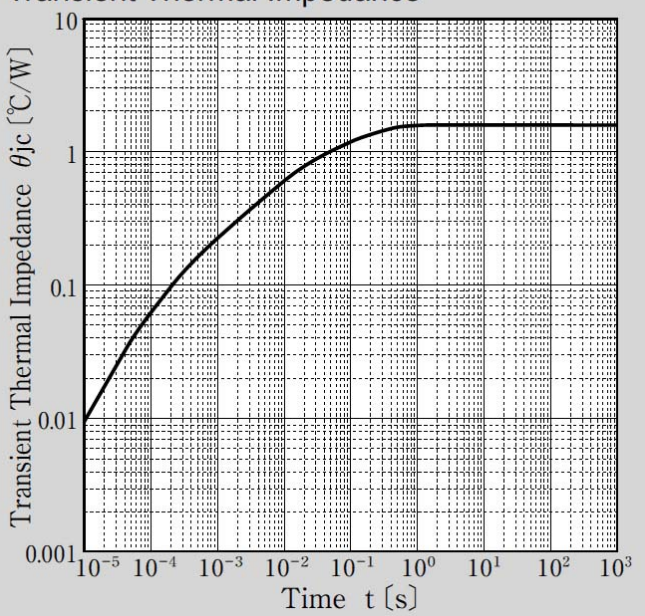
Gate Threshold Voltage vs Case Temperature



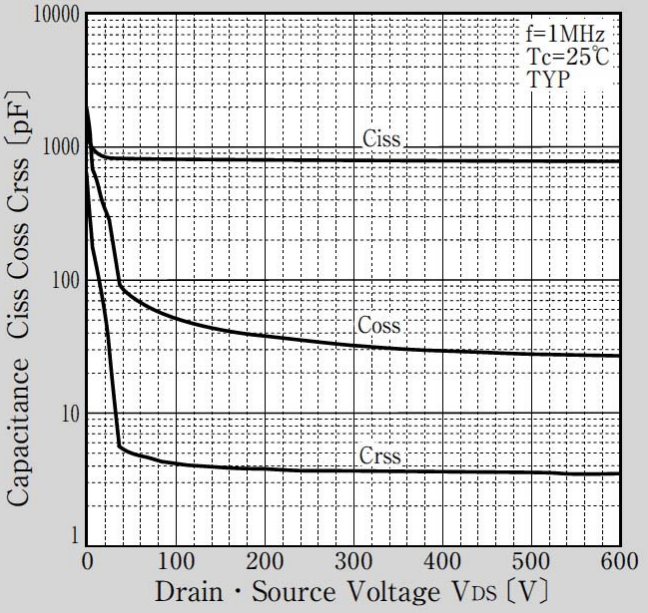
Safe Operating Area

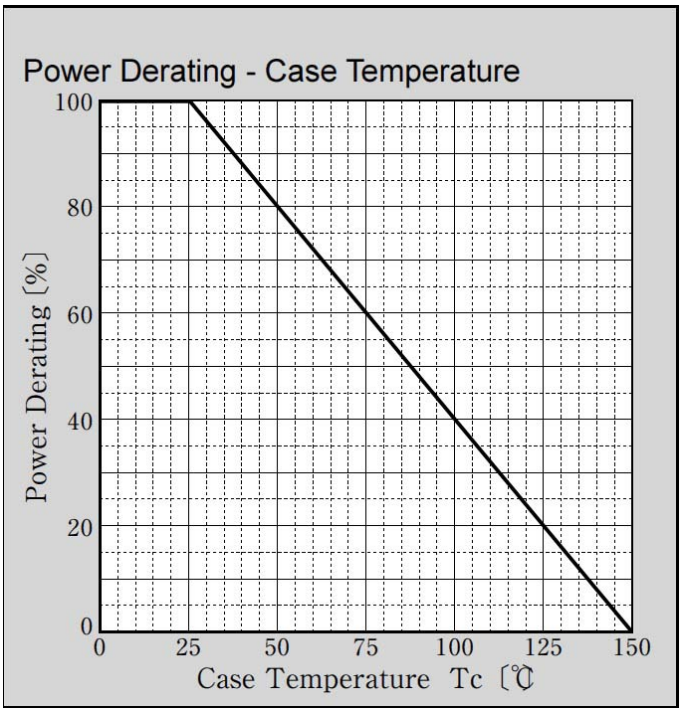


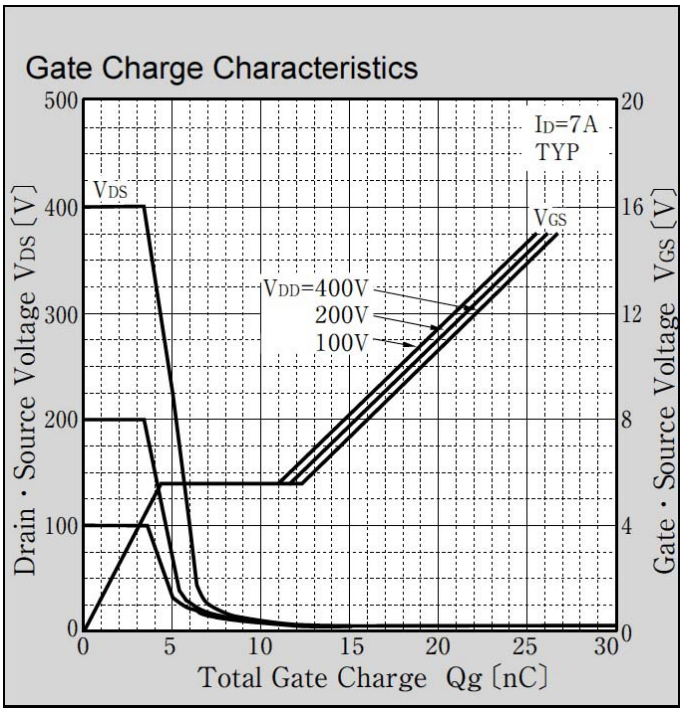
Transient Thermal Impedance

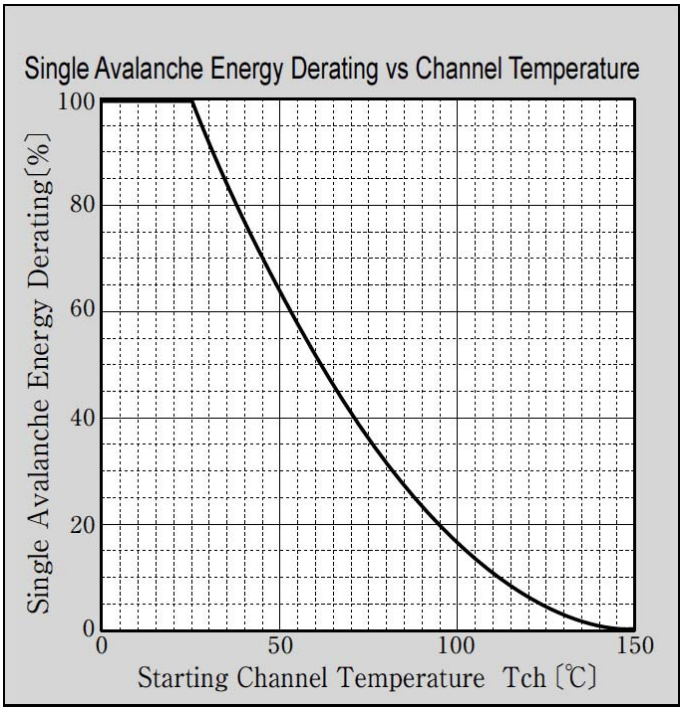


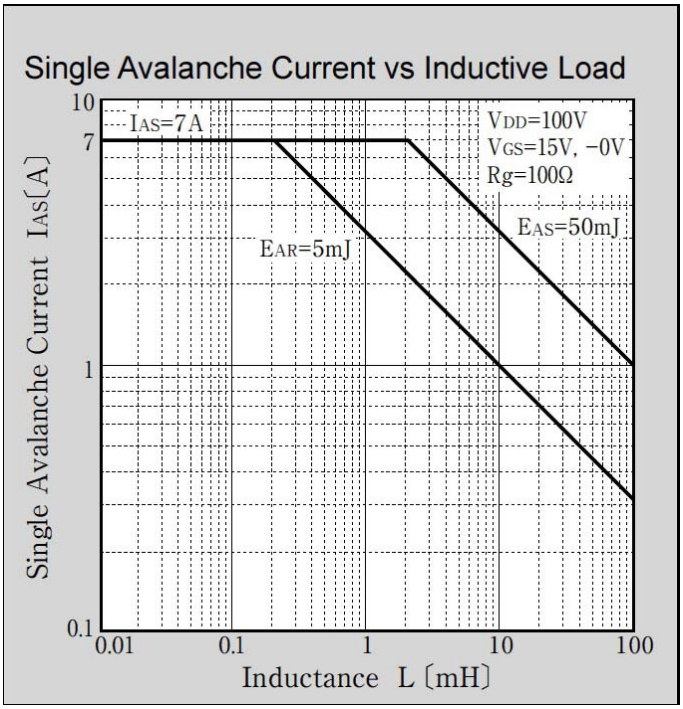
Capacitance Characteristics




Power Derating - Case Temperature
Power Derating〔%〕
Case Temperature Tc〔℃〕
0
20
40
60
80
100
0
25
50
75
100
125
150


Gate Charge Characteristics
Drain・Source Voltage VDS〔V〕
Gate・Source Voltage VGS〔V〕
Total Gate Charge Qg〔nC〕
ID=7A
TYP
VDS
VGS
VDD=400V
200V
100V
0
100
200
300
400
500
0
4
8
12
16
20
0
5
10
15
20
25
30


Single Avalanche Energy Derating vs Channel Temperature
Single Avalanche Energy Derating〔%〕
Starting Channel Temperature Tch〔℃〕
0
20
40
60
80
100
0
50
100
150


Single Avalanche Current vs Inductive Load
Single Avalanche Current IAS〔A〕
Inductance L〔mH〕
IAS=7A
VDD=100V
VGS=15V, −0V
Rg=100Ω
EAS=50mJ
EAR=5mJ
0.1
1
7
10
0.01
0.1
1
10
100

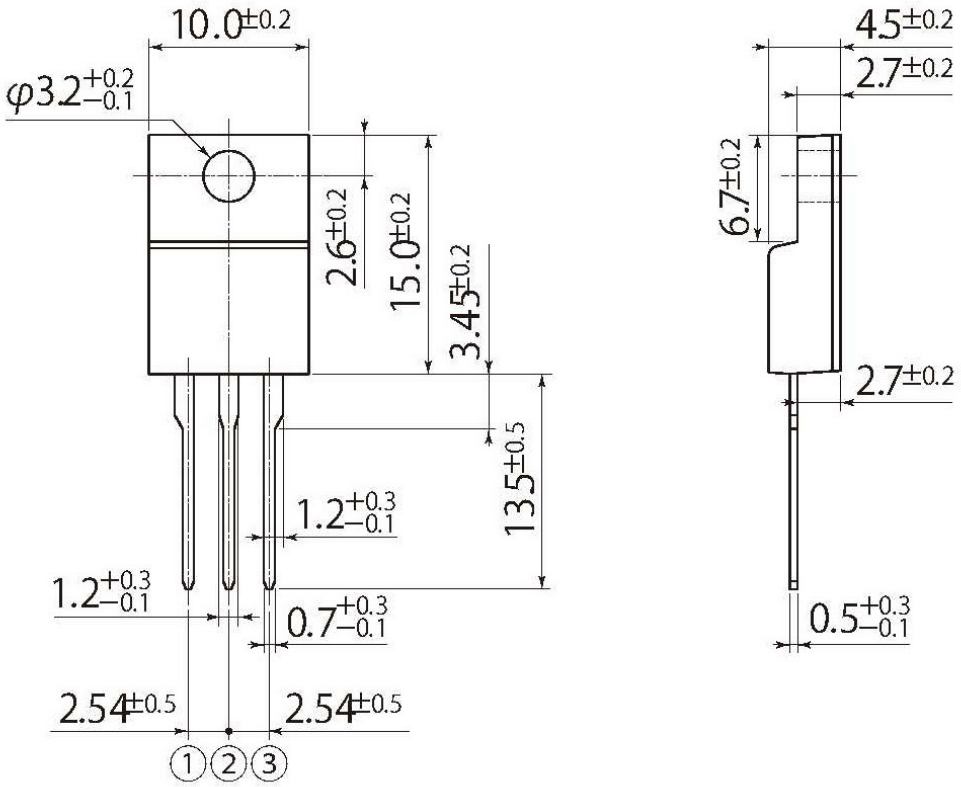
Outline Dimensions

unit:mm

scale: 2/1

J8

JEDEC Code	–
JEITA Code	SC-91
House Name	FTO-220AG(3pin)



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