

P7F90VX3

Power MOSFETs

900V, 7A, N-channel

Feature

- N-channel
- High Voltage (900V)
- High ESD Capability
- Low Capacitance
- High Avalanche Durability, High di/dt Durability
- Pb free terminal
- RoHS:Yes

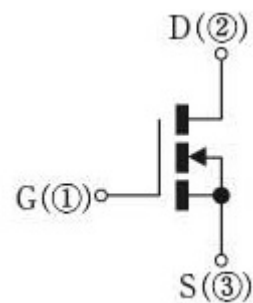
OUTLINE

Package (House Name): FTO-220AG

Package (JEITA Code): SC-91



Equivalent circuit



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

Item	Symbol	Conditions	Ratings	Unit
Storage temperature	Tstg		-55 to 150	°C
Channel temperature	Tch		-55 to 150	°C
Drain-source voltage	V _{DSS}		900	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	21	A
Continuous source current(DC)	I _S		7	A
Total power dissipation	P _T		95	W
Repetitive avalanche current	I _{AR}	Starting Tch=25°C Tch≤150°C	7	A
Single avalanche energy	E _{AS}	Starting Tch=25°C Tch≤150°C	80	mJ
Repetitive avalanche energy	E _{AR}	Starting Tch=25°C Tch≤150°C	8	mJ
Drain-source diode di/dt strength	di/dt	I _S =7A, Tc=25°C	350	A/μs
Dielectric strength	V _{dis}	Terminals to case, AC1min	2	kV
Mounting torque	TOR	(Recommended torque : 0.3N·m)	0.5	N·m

※ :See the original Specifications

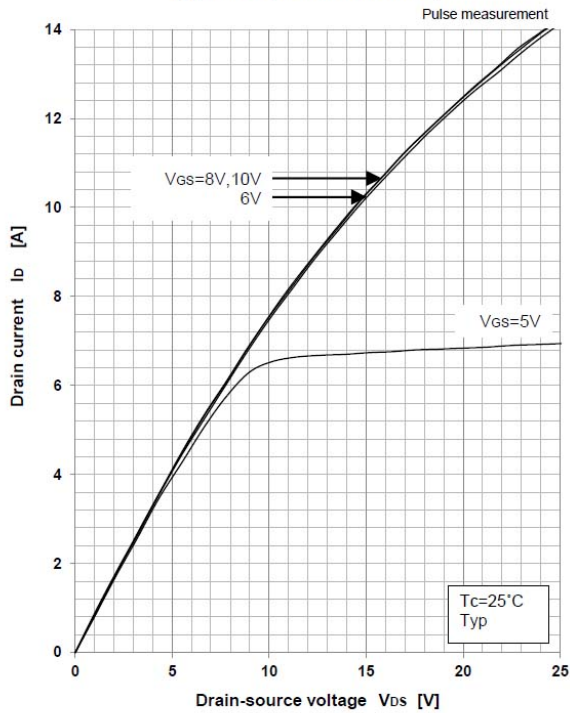
Electrical Characteristics (unless otherwise specified : Tc=25°C)

Item	Symbol	Conditions	Ratings			Unit
			MIN	TYP	MAX	
Drain-Source breakdown voltage	$V_{(BR)DSS}$	ID=1mA, VGS=0V	900			V
Zero gate voltage drain current	I_{DSS}	VDS=900V, 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	4.3	9.9		S
Static drain-source on-state resistance	$R_{DS(ON)}$	ID=3.5A, VGS=10V		1.2	1.7	Ω
Gate threshold voltage	V_{th}	ID=1mA, VDS=10V	3		4	V
Source-drain diode forward voltage	V_{SD}	IS=3.5A, VGS=0V			1.5	V
Thermal resistance	$R_{th(j-c)}$	Junction to case, with heatsink			1.58	°C/W
Total gate charge	Q_g	VDD=400V, VGS=10V, ID=7A		42		nC
Input capacitance	C_{iss}	VDS=50V, VGS=0V, f=1MHz		1375		pF
Reverse transfer capacitance	C_{rss}	VDS=50V, VGS=0V, f=1MHz		9.5		pF
Output capacitance	C_{oss}	VDS=50V, VGS=0V, f=1MHz		100		pF
Turn-on delay time	$t_{d(on)}$	ID=3.5A, RL=43Ω, VDD=150V, Rg=50Ω, VGS(+)=10V, VGS(-)=0V		48		ns
Rise time	t_r	ID=3.5A, RL=43Ω, VDD=150V, Rg=50Ω, VGS(+)=10V, VGS(-)=0V		67		ns
Turn-off delay time	$t_{d(off)}$	ID=3.5A, RL=43Ω, VDD=150V, Rg=50Ω, VGS(+)=10V, VGS(-)=0V		265		ns
Fall time	t_f	ID=3.5A, RL=43Ω, VDD=150V, Rg=50Ω, VGS(+)=10V, VGS(-)=0V		79		ns

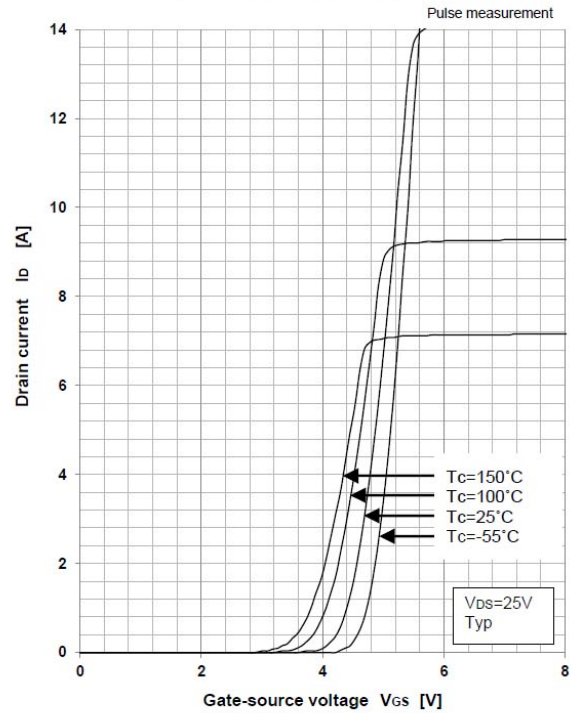
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CHARACTERISTIC DIAGRAMS

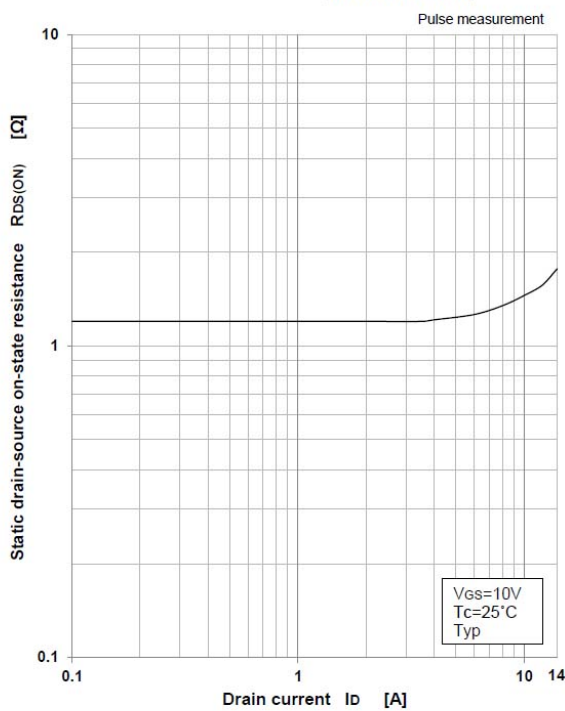
Typical output characteristics



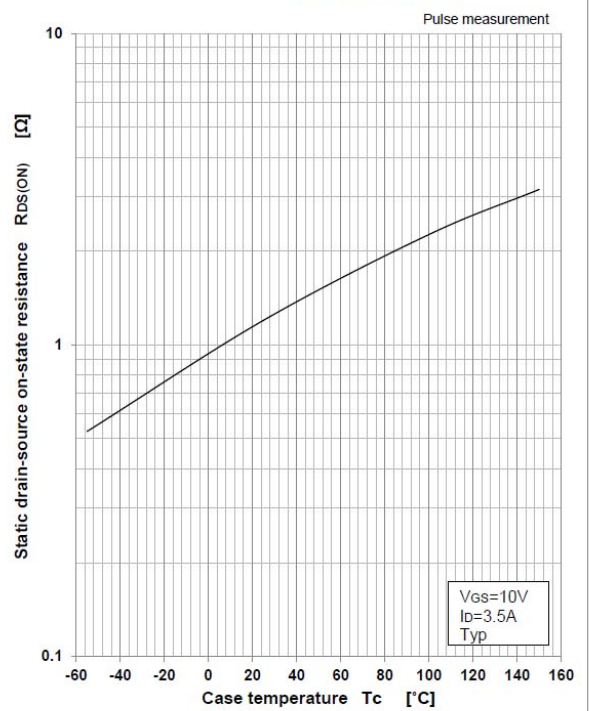
Transfer characteristics

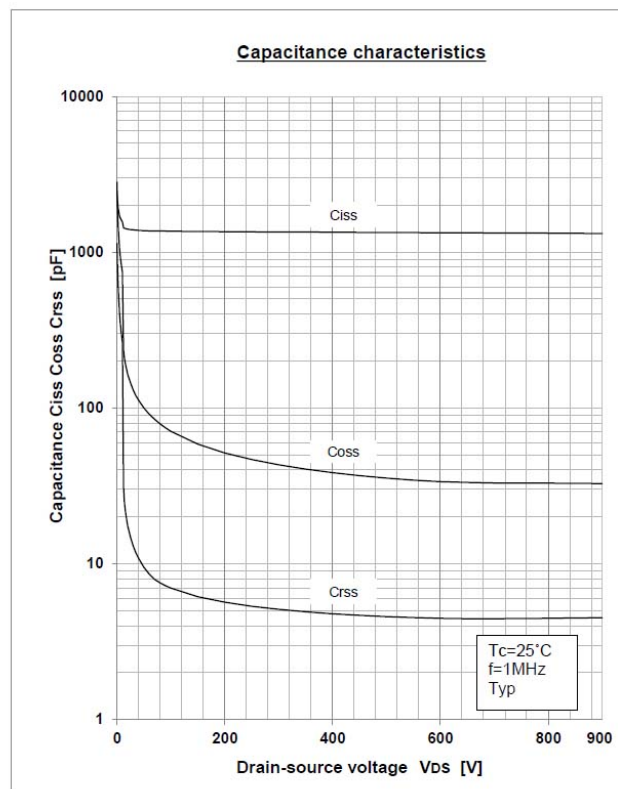
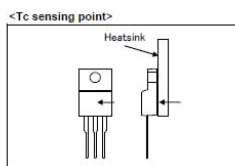
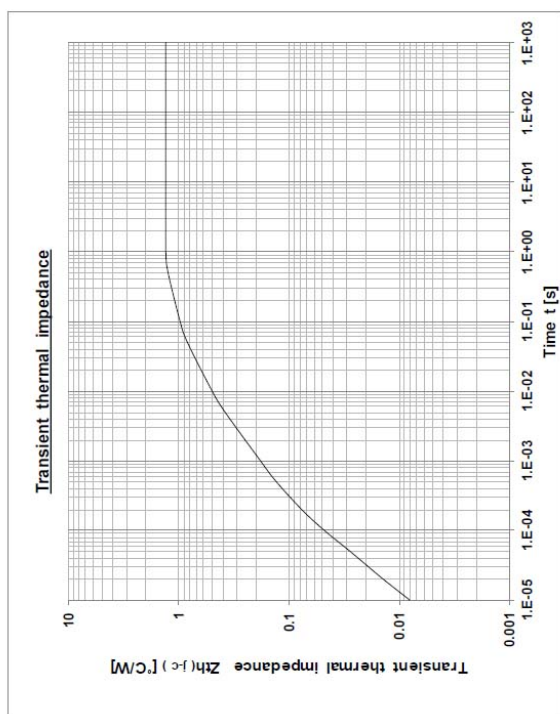
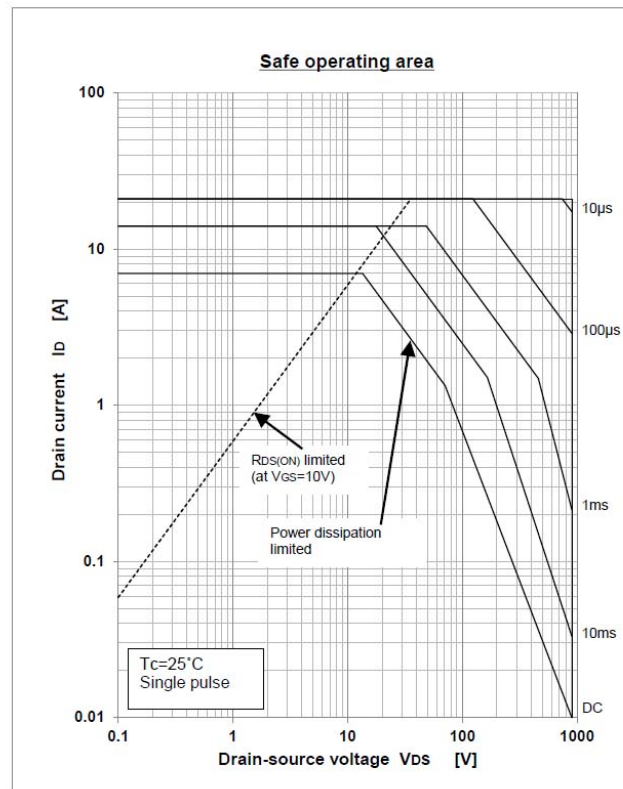
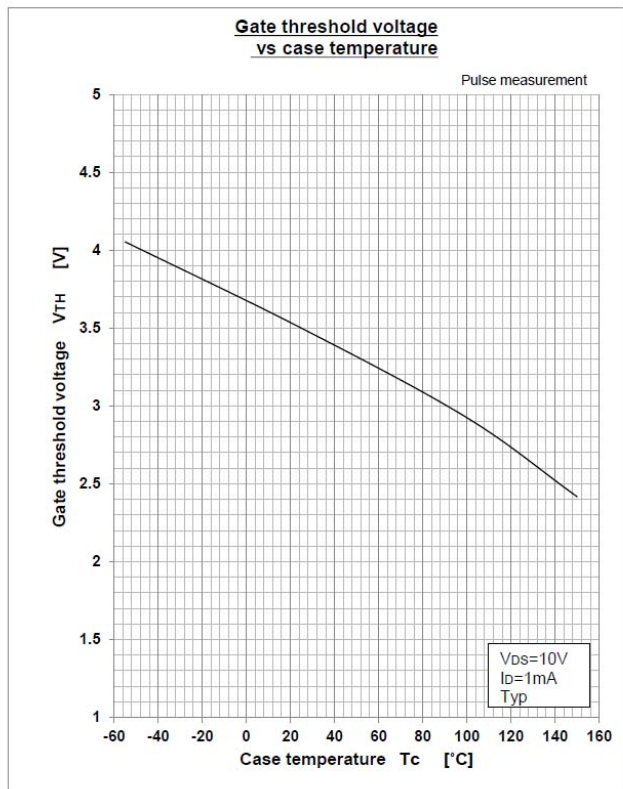


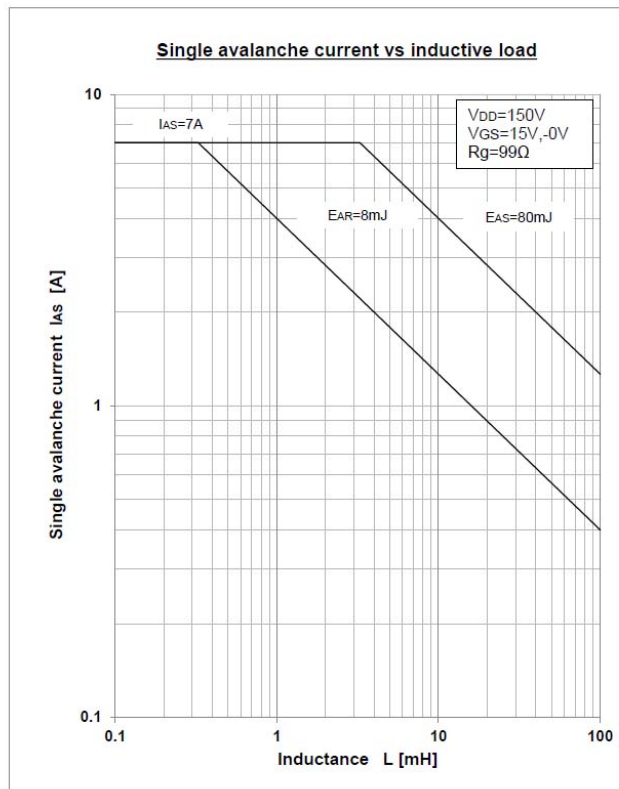
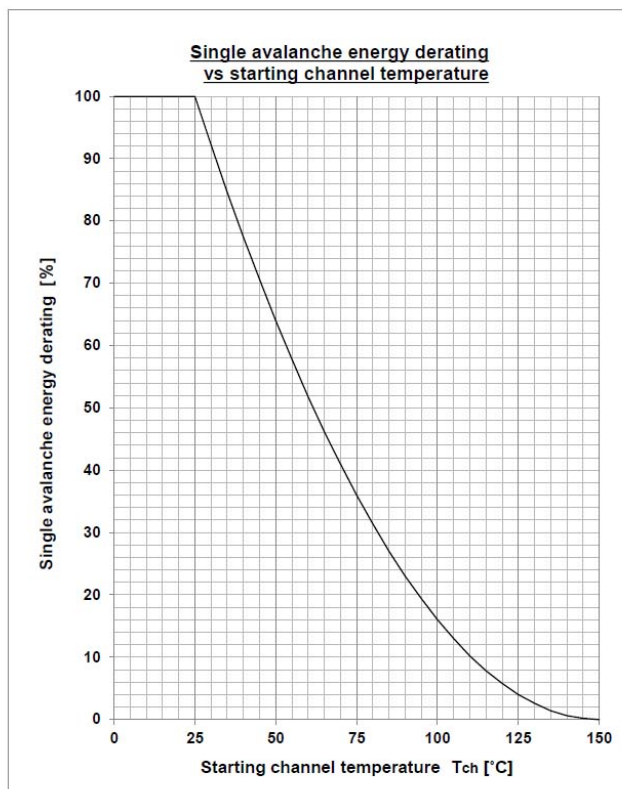
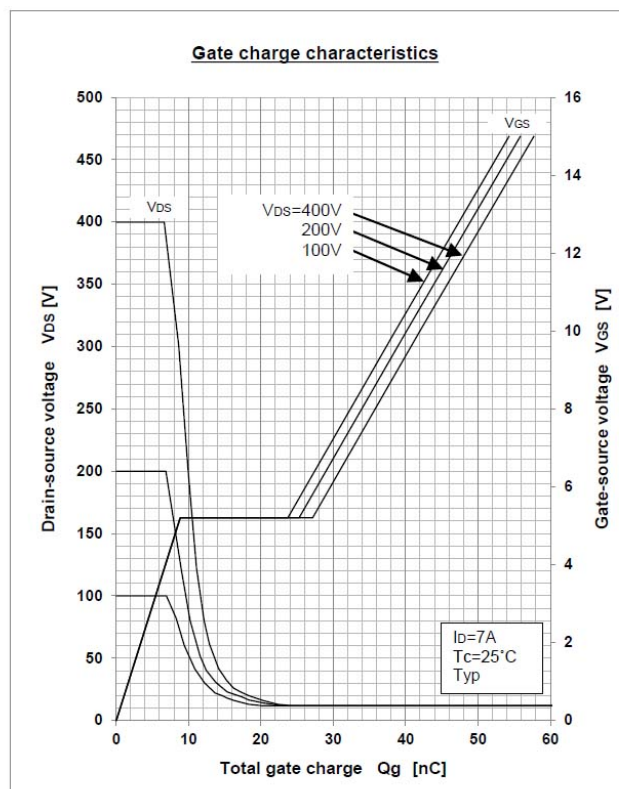
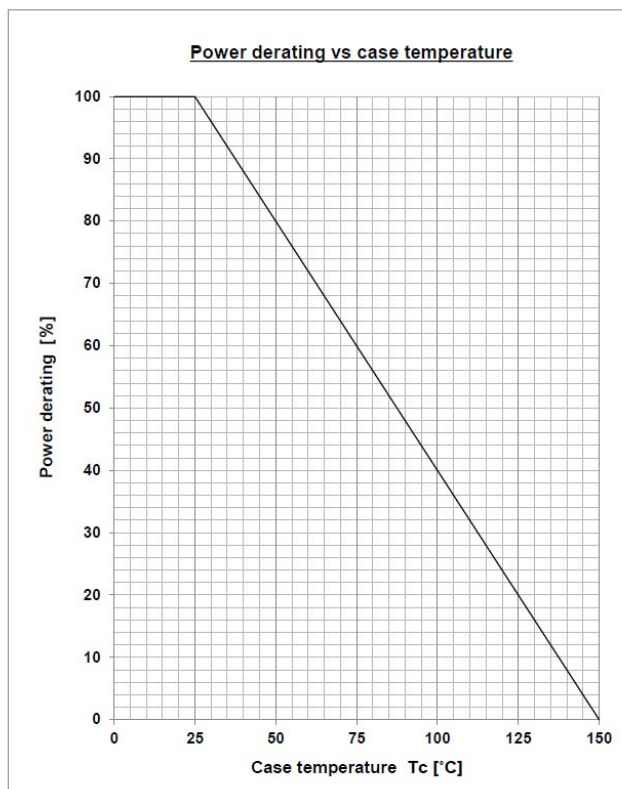
Static drain-source on-state resistance vs drain current



Static drain-source on-state resistance vs case temperature





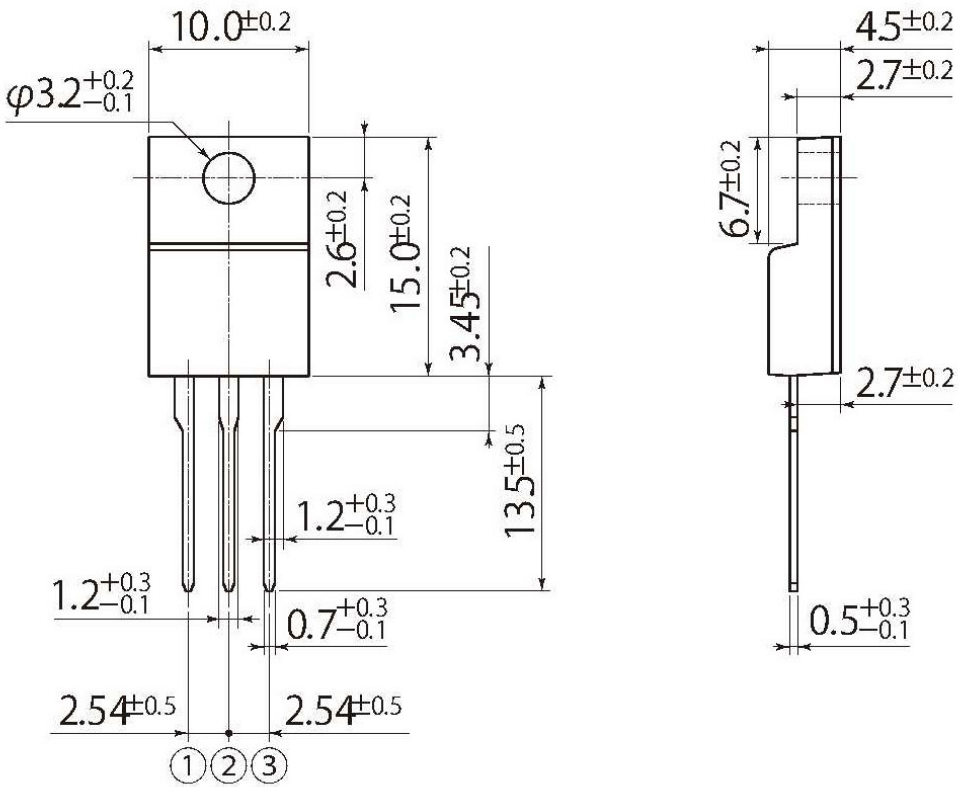


unit:mm

scale: 2/1

J8

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



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