ShinDengen

P50F10SN

Power MOSFETs
100V, 50A, N-channel

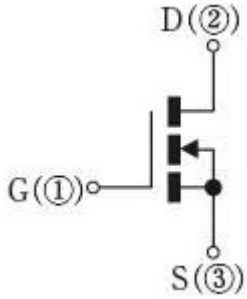
Feature

- N-channel
- Isolated Package
- Low Ron
- 10V Gate Drive
- Low Capacitance
- 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℃)

Item	Symbol	Conditions	Ratings	Unit
Storage temperrature	Tstg		-55 to 150	℃
Channel tempertature	Tch		150	℃
Drain-source voltage	V_{DSS}		100	V
Gate-source voltage	V_{GSS}		±20	V
Continuous drain current(DC)	I_D		50	A
Continuous drain current(Peak)	I_{DP}	Pulse width 10μs, duty=1/100	200	A
Total power dissipation	P_T		51	W
Single avalanche current	I_{AS}	Starting Tch=25℃ Tch≦150℃	43	A
Single avalanche energy	E_{AS}	Starting Tch=25℃ Tch≦150℃	92	mJ
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

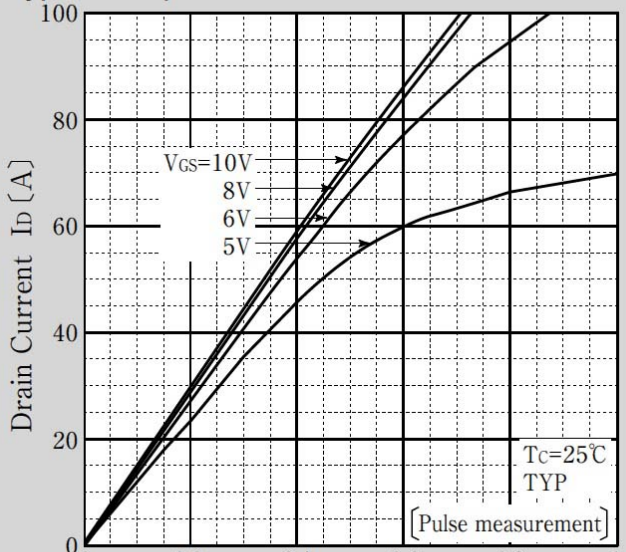
Electrical Characteristics (unless otherwise specified : Tc=25℃)

Item	Symbol	Conditions	Ratings			Unit
			MIN	TYP	MAX	
Drain-Source breakdown voltage	$V_{(BR)DSS}$	ID=1mA, VGS=0V	100			V
Zero gate voltage drain current	I_{DSS}	VDS=100V, VGS=0V			1	μA
Gate-source leakage current	I_{GSS}	VGS=±20V, VDS=0V			±0.1	μA
Forward transconductance	g_{fs}	ID=25A, VDS=10V	17			S
Static drain-source on-state resistance	$R_{DS(ON)}$	ID=25A, VGS=10V		0.0069	0.0087	Ω
Gate threshold voltage	Vth	ID=1mA, VDS=10V	2	3	4	V
Source-drain diode forward voltage	V_{SD}	IS=50A, VGS=0V			1.5	V
Thermal resistance	Rth(j-c)	Junction to case			2.45	℃/W
Total gate charge	Qg	VDD=80V, VGS=10V, ID=50A		114		nC
Gate to source charge	Qgs	VDD=80V, VGS=10V, ID=50A		29		nC
Gate to drain charge	Qgd	VDD=80V, VGS=10V, ID=50A		39		nC
Input capacitance	Ciss	VDS=25V, VGS=0V, f=1MHz		5880		pF
Reverce transfer capacitnce	Crss	VDS=25V, VGS=0V, f=1MHz		250		pF
Output capacitance	Coss	VDS=25V, VGS=0V, f=1MHz		530		pF
Turn-on delay time	td(on)	ID=25A, RL=2Ω, VDD=50V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V		12		ns
Rise time	tr	ID=25A, RL=2Ω, VDD=50V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V		28		ns
Turn-off delay time	td(off)	ID=25A, RL=2Ω, VDD=50V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V		65		ns
Fall time	tf	ID=25A, RL=2Ω, VDD=50V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V		49		ns
Diode reverse recovery time	trr	IF=50A, VGS=0V, di/dt=100A/μs		61		ns
Diode reverse recovery charge	Qrr	IF=50A, VGS=0V, di/dt=100A/μs		143		nC

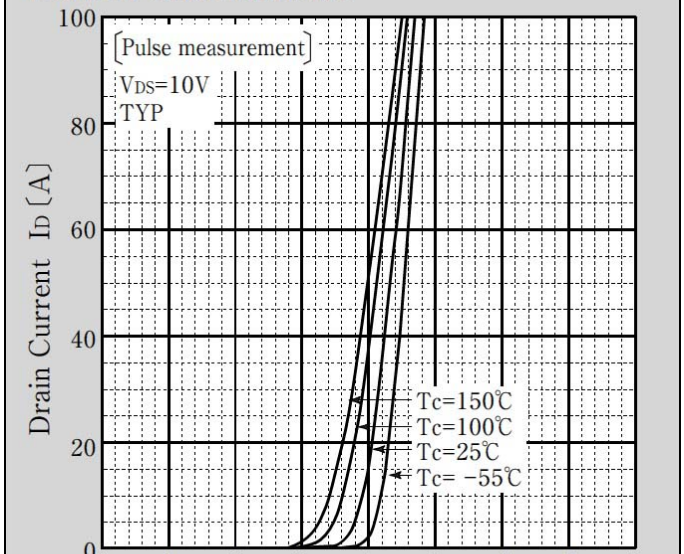
※ ：See the original Specifications

CHARACTERISTIC DIAGRAMS

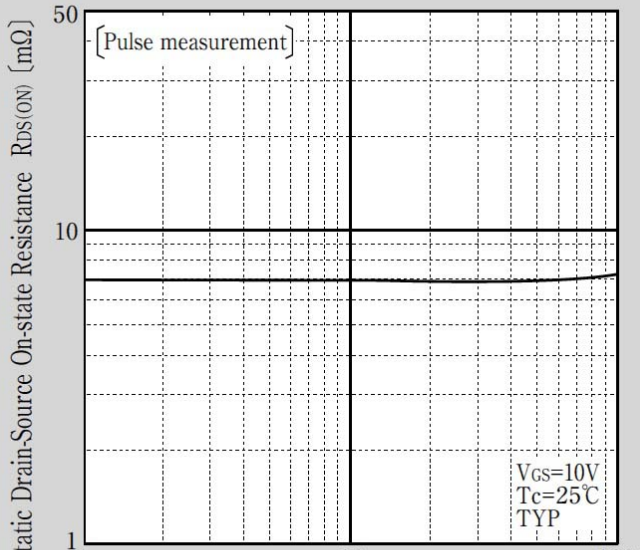
Typical Output Characteristics



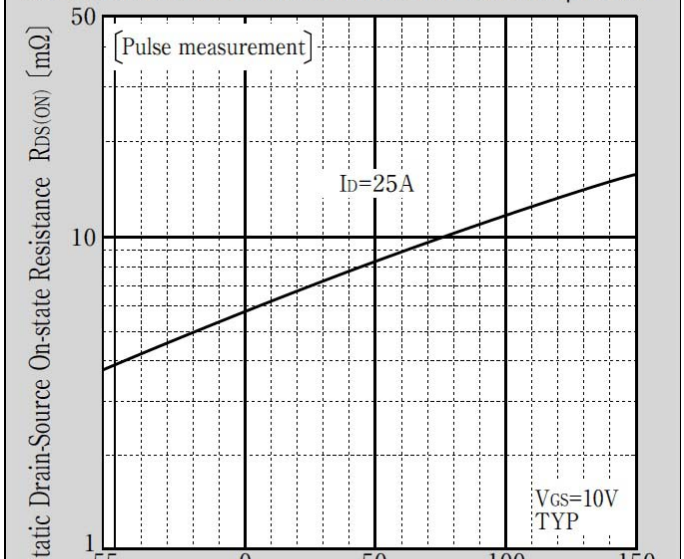
Transfer Characteristics



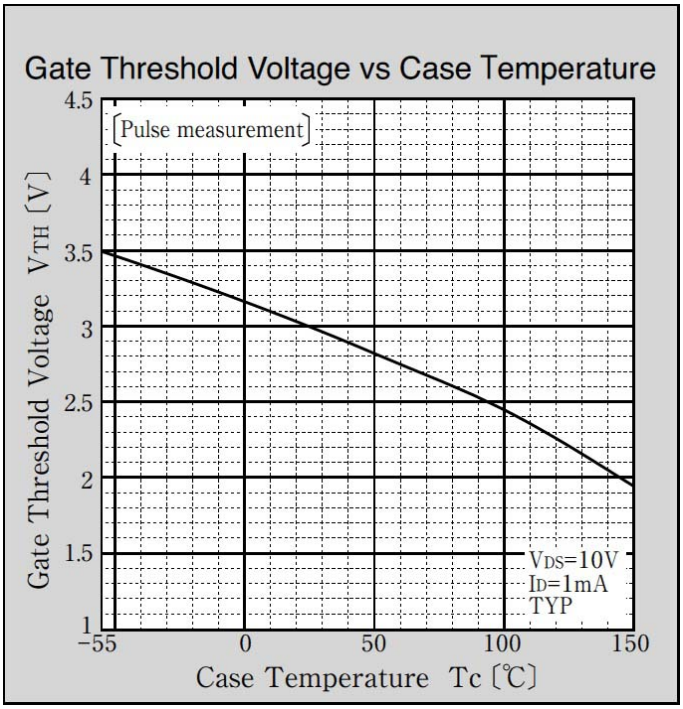
Static Drain-Source On-state Resistance vs Drain Current



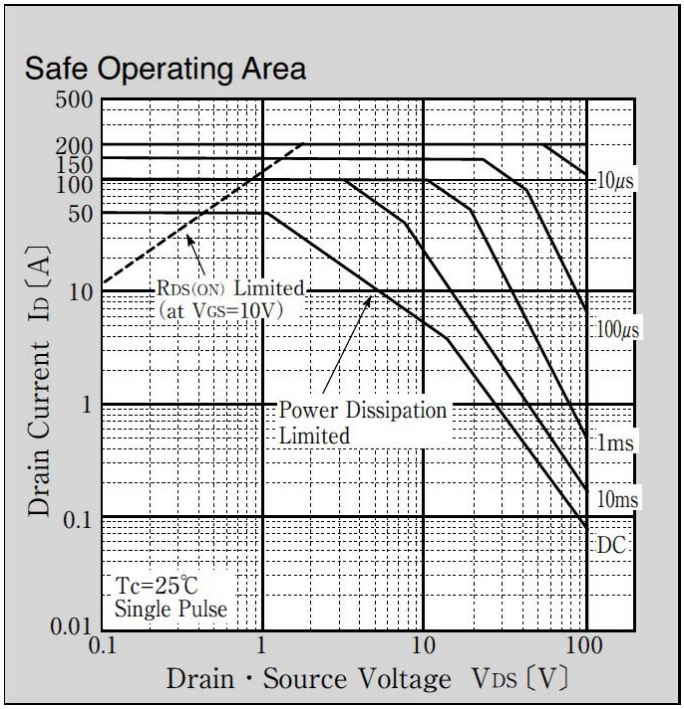
Static Drain-Source On-state Resistance vs Case Temperature



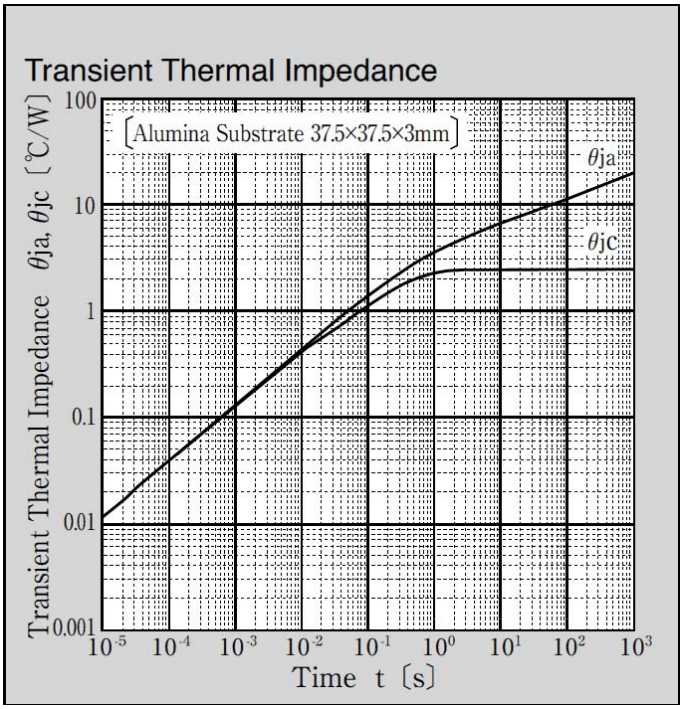
Gate Threshold Voltage vs Case Temperature



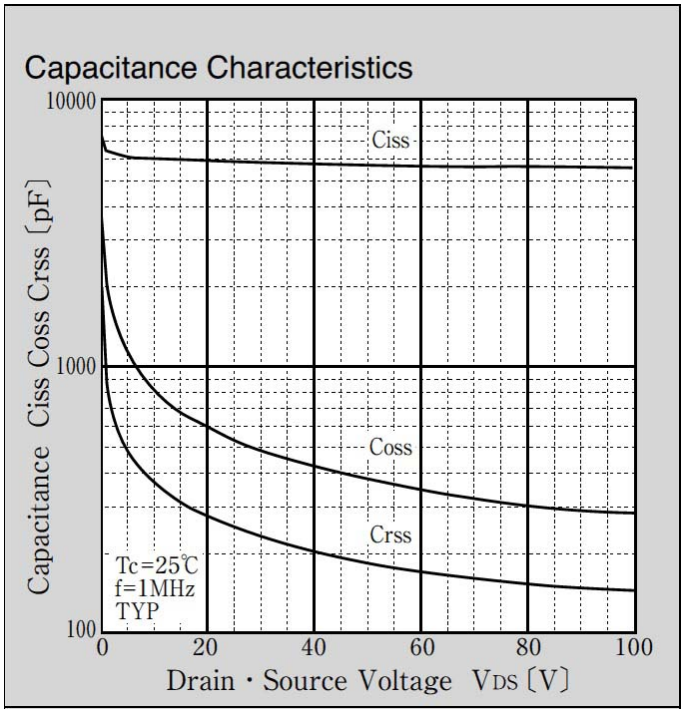
Safe Operating Area



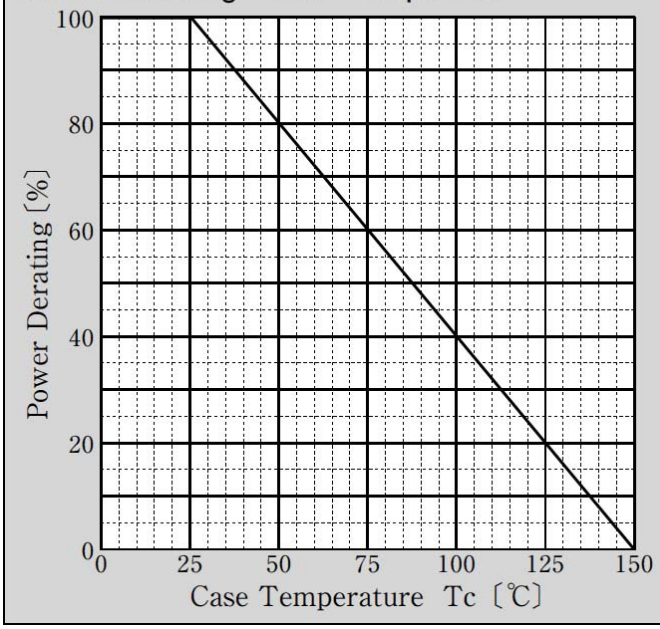
Transient Thermal Impedance



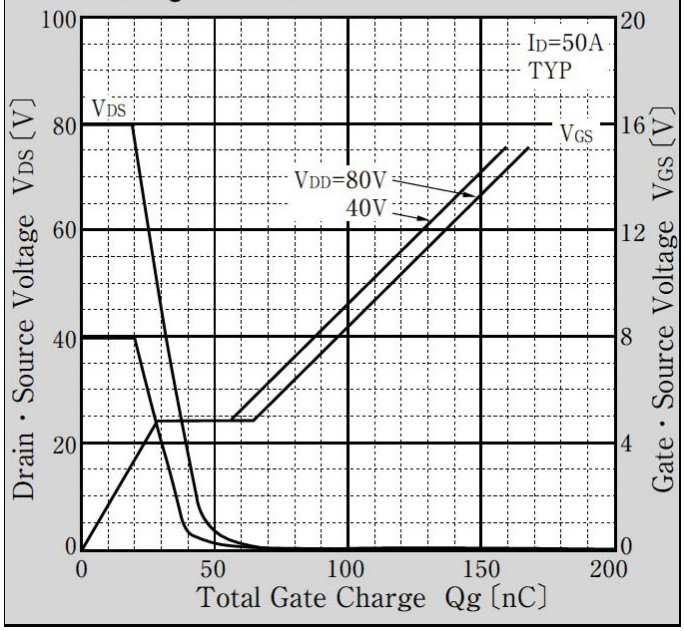
Capacitance Characteristics



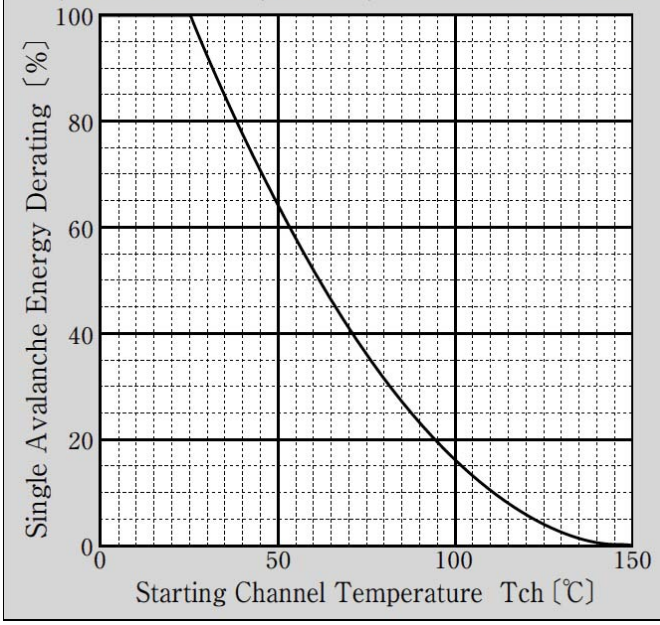
Power Derating - Case Temperature



Gate Charge Characteristics



Single Avalanche Energy Derating vs Channel Temperature



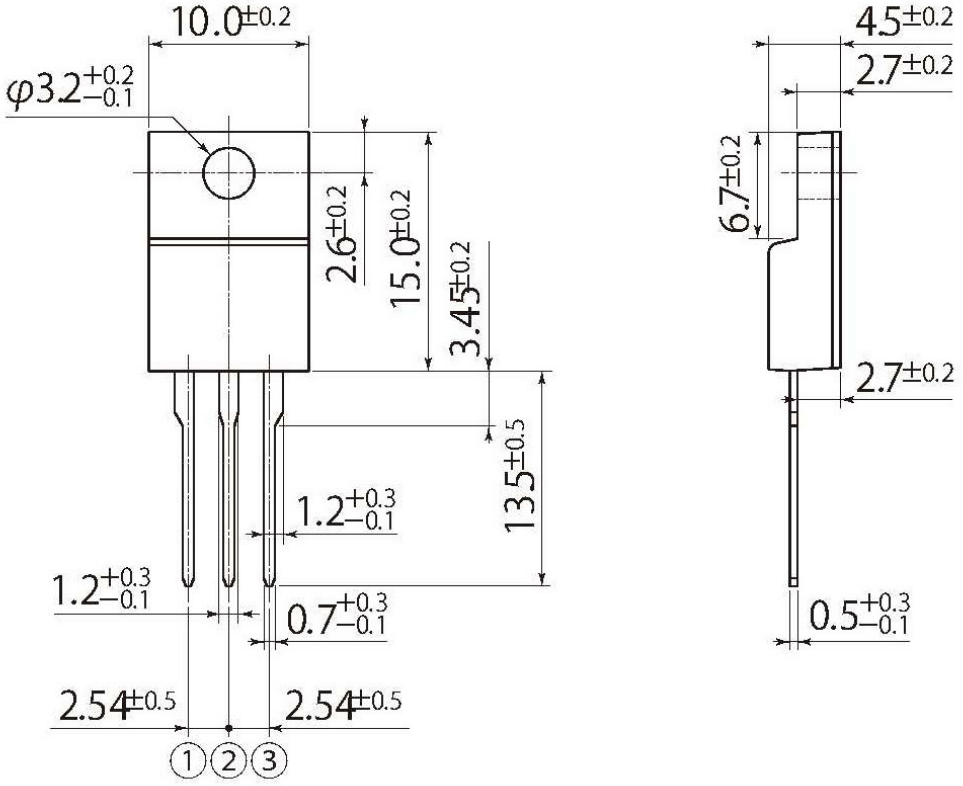
Outline Dimensions

unit:mm

scale: 2/1

J8

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



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