

P25B6EB

Power MOSFETs

60V, 25A, N-channel

Feature

- N-channel
- SMD
- Low Ron
- 4.5V Gate Drive
- Low Capacitance
- Pb free terminal
- RoHS:Yes

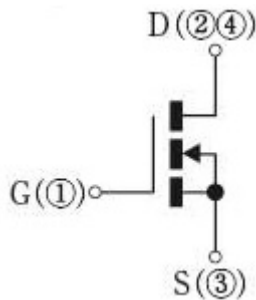
OUTLINE

Package (House Name): FB

Package (JEDEC Code): TO-252AA



Equivalent circuit



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

Item	Symbol	Conditions	Ratings	Unit
Storage temperature	Tstg		-55 to 150	°C
Channel tempertature	Tch		-55 to 150	°C
Drain-source voltage	V <sub>DSS</sub>		60	V
Gate-source voltage	V <sub>GSS</sub>		±20	V
Continuous drain current(DC)	I <sub>D</sub>		25	A
Continuous drain current(Peak)	I <sub>DP</sub>	Pulse width 10μs, duty=1/100	70	A
Total power dissipation	P <sub>T</sub>		35	W
Single avalanche current	I <sub>AS</sub>	Starting Tch=25°C Tch≤150°C	16	A
Single avalanche energy	E <sub>AS</sub>	Starting Tch=25°C Tch≤150°C	29	mJ

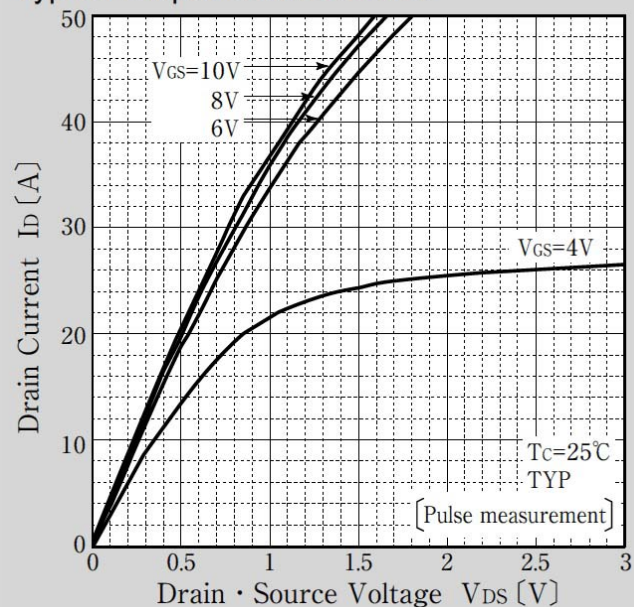
※ :See the original Specifications

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

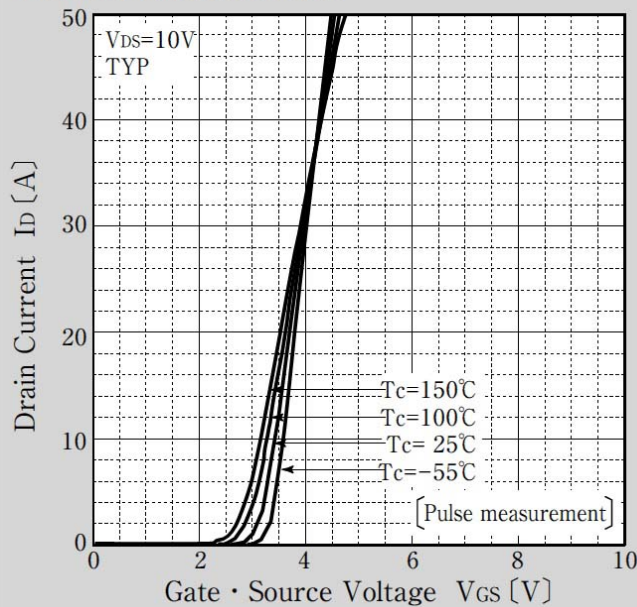
Item	Symbol	Conditions	Ratings			Unit
			MIN	TYP	MAX	
Drain-Source breakdown voltage	$V_{(BR)DSS}$	ID=1mA, VGS=0V	60			V
Zero gate voltage drain current	$I_{DSS}$	VDS=60V, VGS=0V			1	μA
Gate-source leakage current	$I_{GSS}$	VGS=±20V, VDS=0V			±10	μA
Forward transconductance	$g_{fs}$	ID=12.5A, VDS=10V	6	12		S
Static drain-source on-state resistance	$R_{DS(ON)}$	ID=12.5A, VGS=10V		0.023	0.029	Ω
Static drain-source on-state resistance	$R_{DS(ON)}$	ID=12.5A, VGS=4.5V		0.0295	0.04	Ω
Gate threshold voltage	$V_{th}$	ID=1mA, VDS=10V	1.5	2	2.5	V
Source-drain diode forward voltage	$V_{SD}$	IS=25A, VGS=0V			1.5	V
Thermal resistance	$R_{th(j-c)}$	Junction to case, with heatsink ※			3.55	°C/W
Total gate charge	$Q_g$	VDD=48V, VGS=10V, ID=25A		14.5		nC
Gate to source charge	$Q_{gs}$	VDD=48V, VGS=10V, ID=25A		3.3		nC
Gate to drain charge	$Q_{gd}$	VDD=48V, VGS=10V, ID=25A		4.5		nC
Input capacitance	$C_{iss}$	VDS=25V, VGS=0V, f=1MHz		785		pF
Reverse transfer capacitance	$C_{rss}$	VDS=25V, VGS=0V, f=1MHz		45		pF
Output capacitance	$C_{oss}$	VDS=25V, VGS=0V, f=1MHz		115		pF
Turn-on delay time	$t_{d(on)}$	ID=12.5A, RL=2.4Ω, VDD=30V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V		18		ns
Rise time	$t_r$	ID=12.5A, RL=2.4Ω, VDD=30V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V		110		ns
Turn-off delay time	$t_{d(off)}$	ID=12.5A, RL=2.4Ω, VDD=30V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V		55		ns
Fall time	$t_f$	ID=12.5A, RL=2.4Ω, VDD=30V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V		80		ns

※ :See the original Specifications

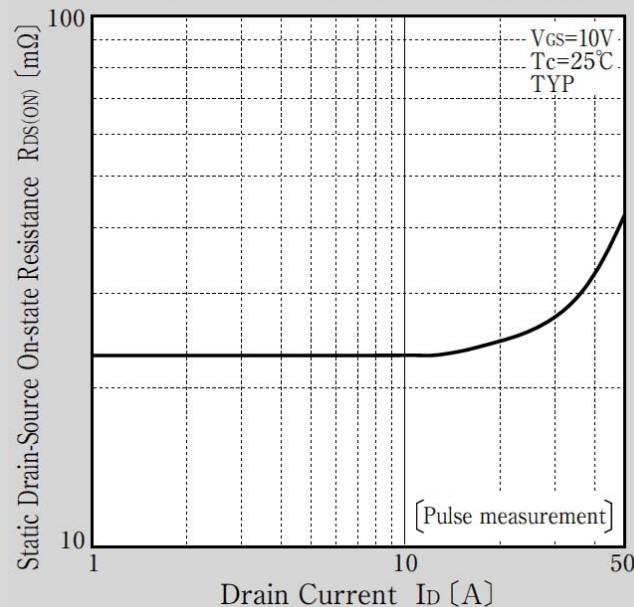
## Typical Output Characteristics



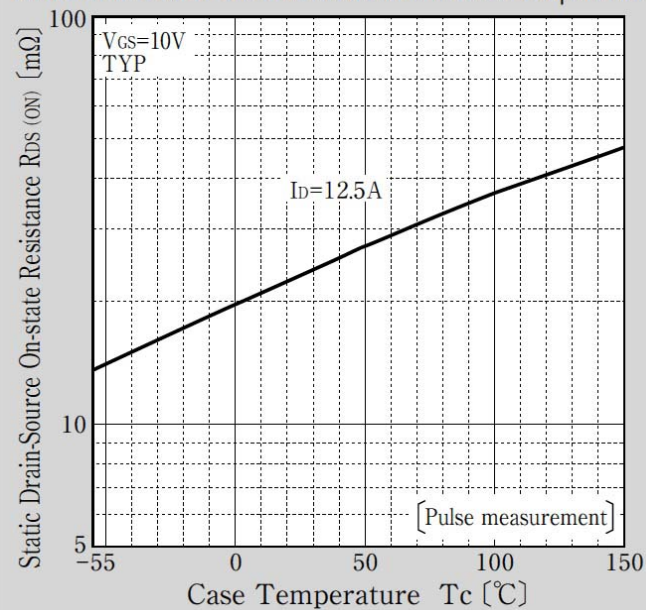
## Transfer Characteristics

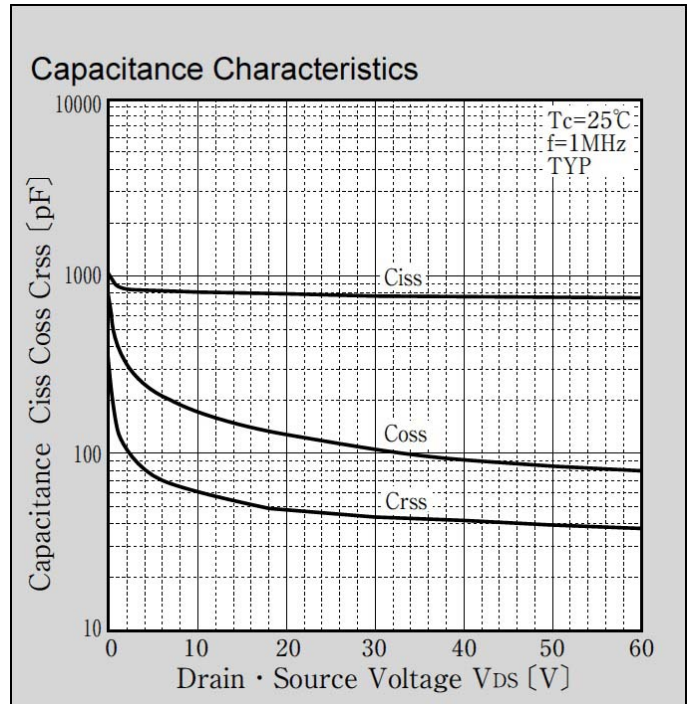
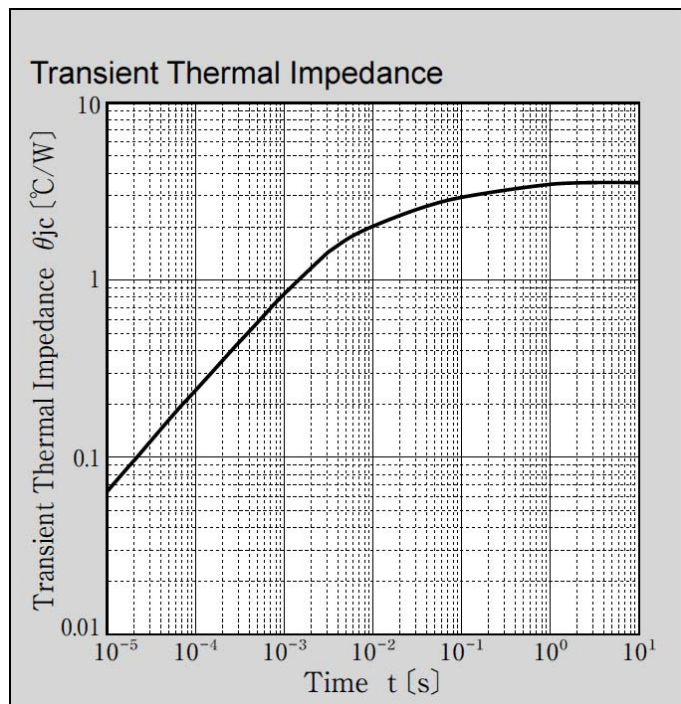
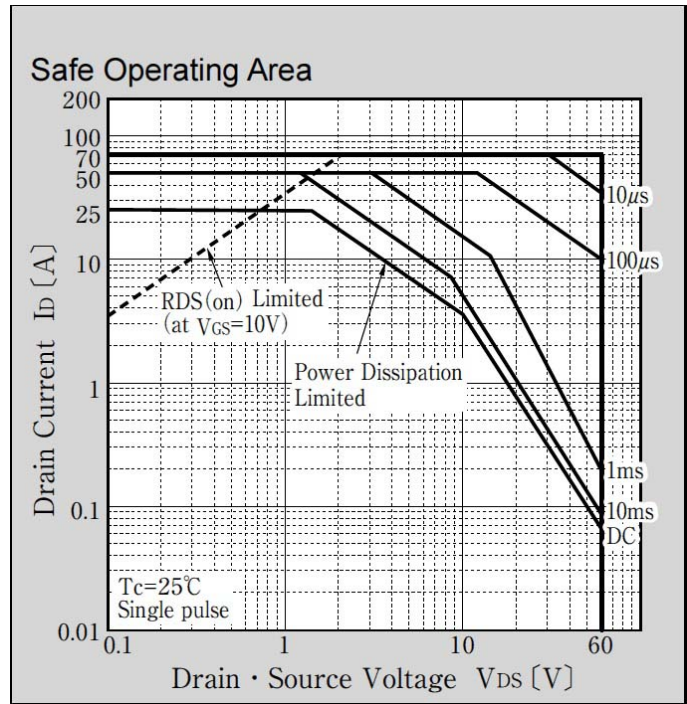
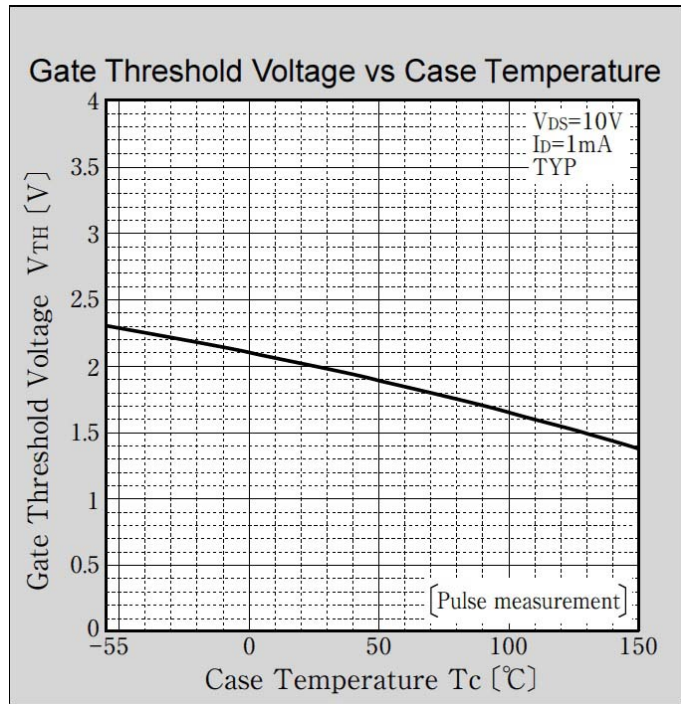


## Static Drain-Source On-state Resistance vs Drain Current



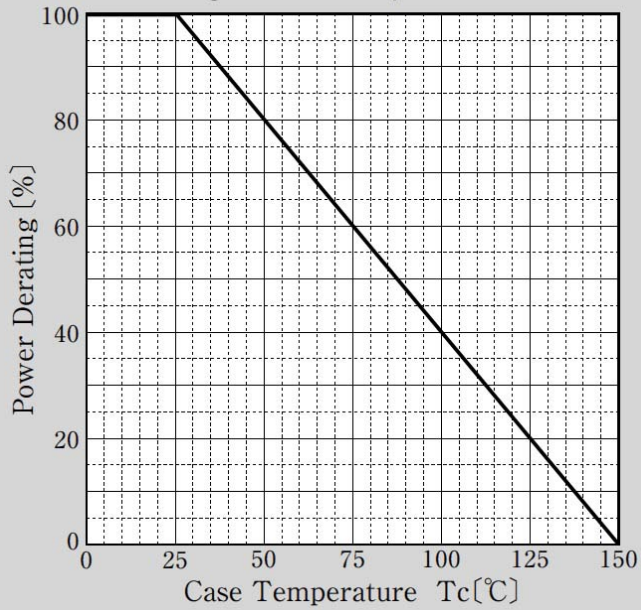
## Static Drain-Source On-state Resistance vs Case Temperature



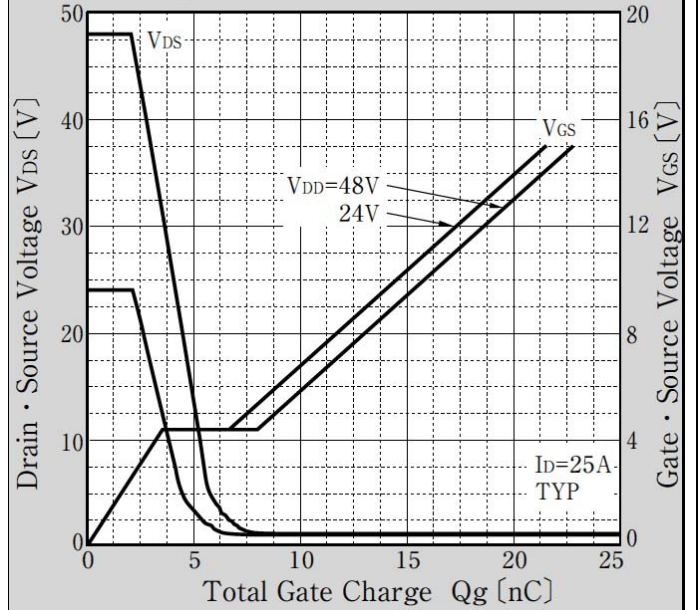




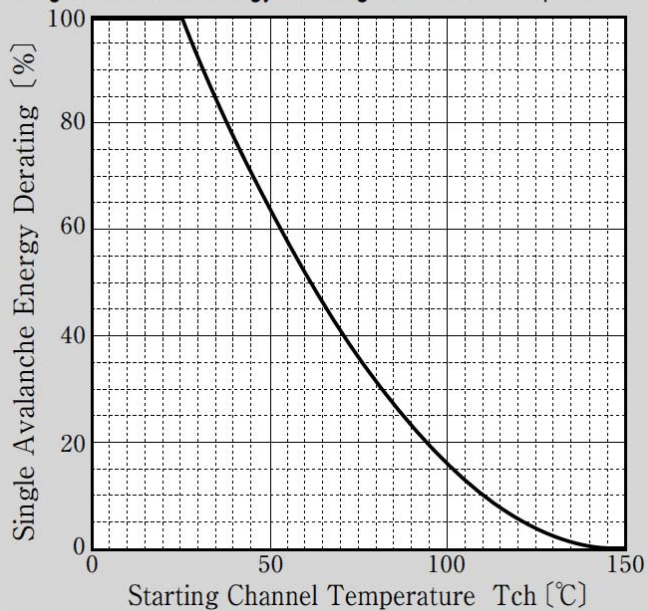
Power Derating - Case Temperature



Gate Charge Characteristics

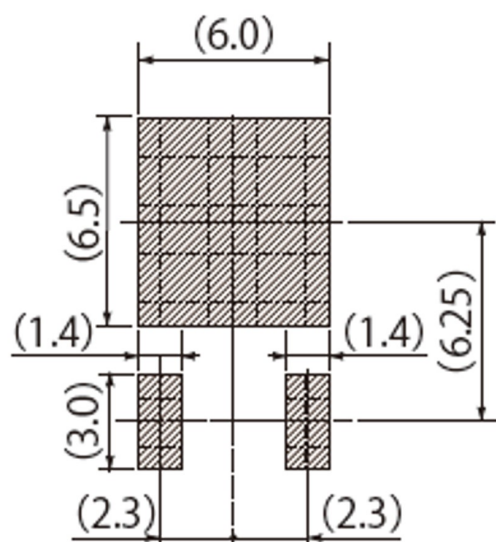
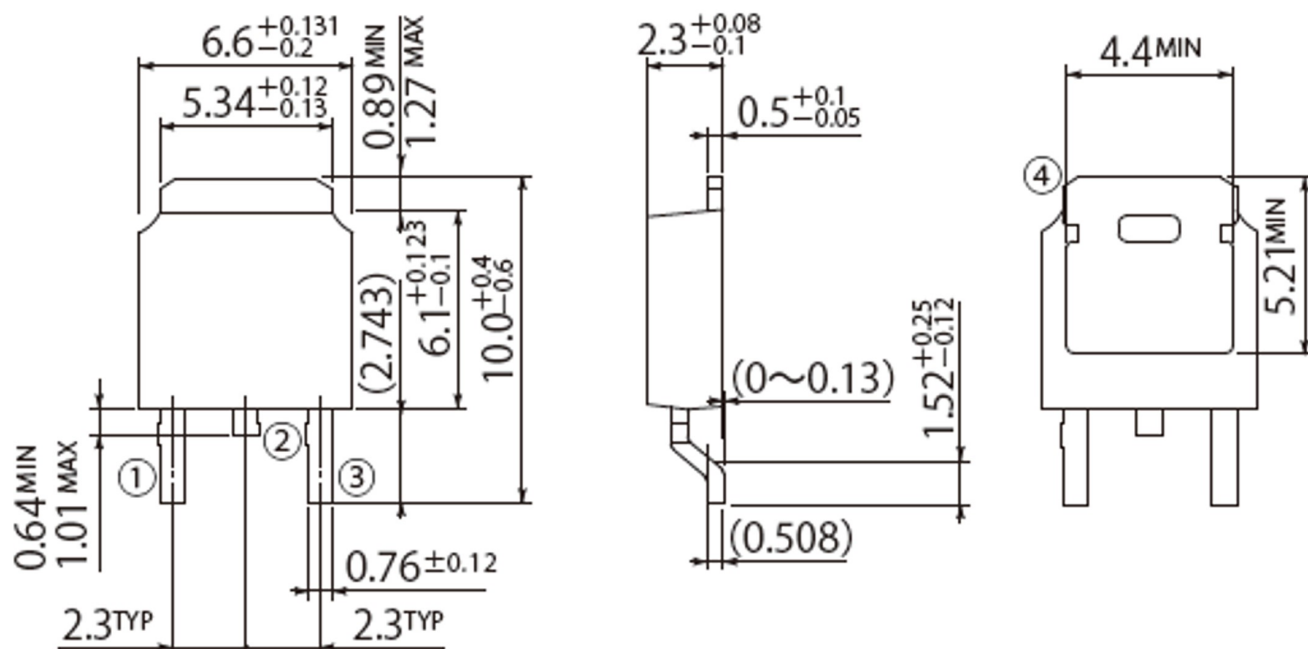


Single Avalanche Energy Derating vs Channel Temperature



G2

JEDEC Code	TO-252AA
JEITA Code	-
House Name	FB



Referential Soldering Pad

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