ShinDengen

P16B6SBK

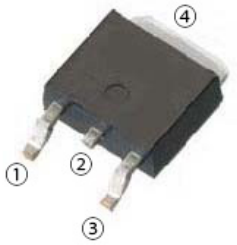
Power MOSFETs
60V, 16A, N-channel

Feature

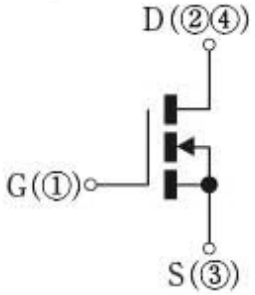
- N-channel
- SMD
- Low Ron
- 4.5V Gate Drive
- Low Capacitance
- Based on AEC-Q101
- Halogen free
- Pb free terminal
- RoHS:Yes

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 175	°C
Channel tempertature	Tch		-55 to 175	°C
Drain-source voltage	V_{DSS}		60	V
Gate-source voltage	V_{GSS}		±20	V
Continuous drain current(DC)	I_D		16	A
Continuous drain current(Peak)	I_{DP}	Pulse width 10μs, duty=1/100	48	A
Total power dissipation	P_T	With heatsink※	23	W
Single avalanche current	I_{AS}	Starting Tch=25°C Tch≦150°C, Rg=0Ω	12	A
Single avalanche energy	E_{AS}	Starting Tch=25°C Tch≦150°C, Rg=0Ω	14.8	mJ

※ :See the original Specifications

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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=8A, VDS=10V	4			S
Static drain-source on-state resistance	$R_{DS(ON)}$	ID=8A, VGS=10V		0.029	0.037	Ω
Static drain-source on-state resistance	$R_{DS(ON)}$	ID=8A, VGS=4.5V		0.036	0.048	Ω
Gate threshold voltage	Vth	ID=1mA, VDS=10V	1.5	2	2.5	V
Source-drain diode forward voltage	V_{SD}	IS=16A, VGS=0V			1.5	V
Thermal resistance	Rth(j-c)	Junction to case, With heatsink※			6.28	°C/W
Total gate charge	Qg	VDS=48V, VGS=10V, ID=16A		17		nC
Gate to source charge	Qgs	VDS=48V, VGS=10V, ID=16A		4.1		nC
Gate to drain charge	Qgd	VDS=48V, VGS=10V, ID=16A		4		nC
Input capacitance	Ciss	VDS=25V, VGS=0V, f=1MHz		655		pF
Reverce transfer capacitnce	Crss	VDS=25V, VGS=0V, f=1MHz		36		pF
Output capacitance	Coss	VDS=25V, VGS=0V, f=1MHz		85		pF
Turn-on delay time	td(on)	ID=8A, RL=3.75Ω, VDS=30V, Rg=0Ω, +VGS=10V, -VGS=0V		4		ns
Rise time	tr	ID=8A, RL=3.75Ω, VDS=30V, Rg=0Ω, +VGS=10V, -VGS=0V		8.5		ns
Turn-off delay time	td(off)	ID=8A, RL=3.75Ω, VDS=30V, Rg=0Ω, +VGS=10V, -VGS=0V		13.5		ns
Fall time	tf	ID=8A, RL=3.75Ω, VDS=30V, Rg=0Ω, +VGS=10V, -VGS=0V		4		ns
Diode reverse recovery time	trr	IS=16A, VGS=0V, -di/dt=100A/μs		40		ns
Diode reverse recovery charge	Qrr	IS=16A, VGS=0V, -di/dt=100A/μs		46		nC

※ ：See the original Specifications

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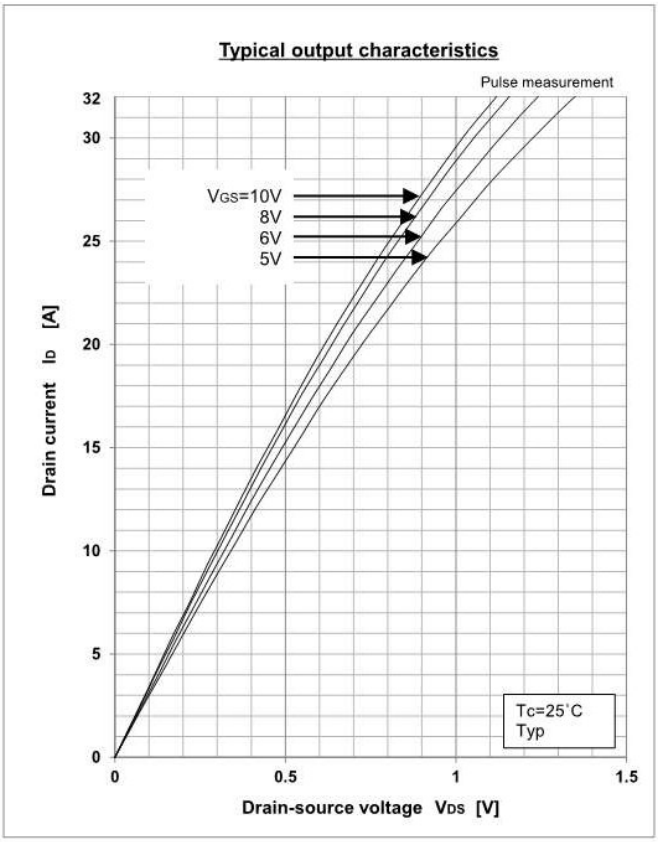
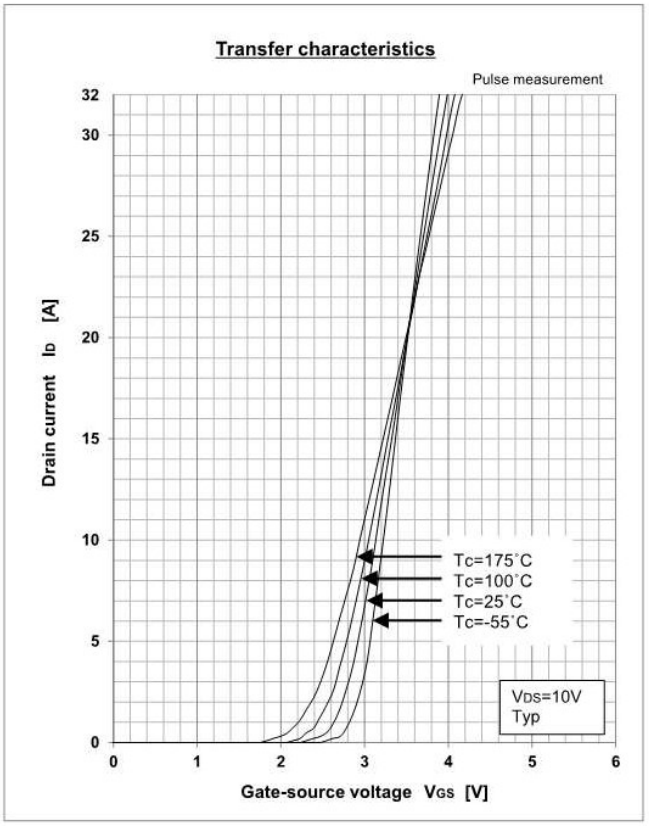
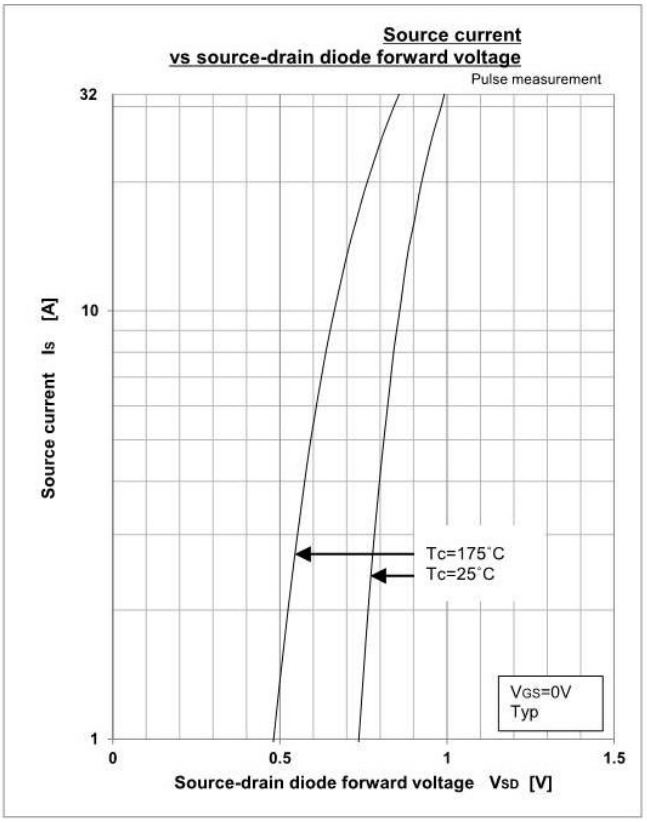
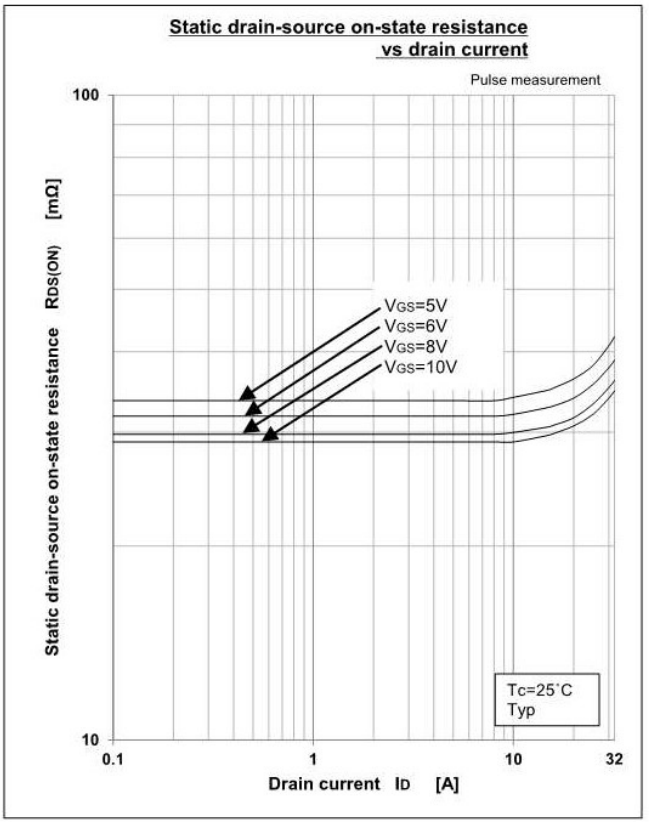
CHARACTERISTIC DIAGRAMS









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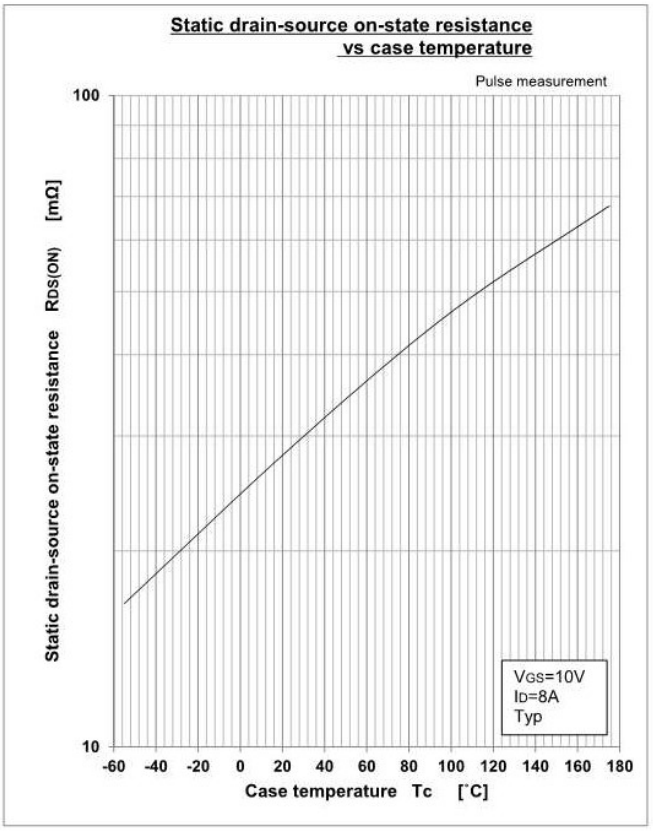

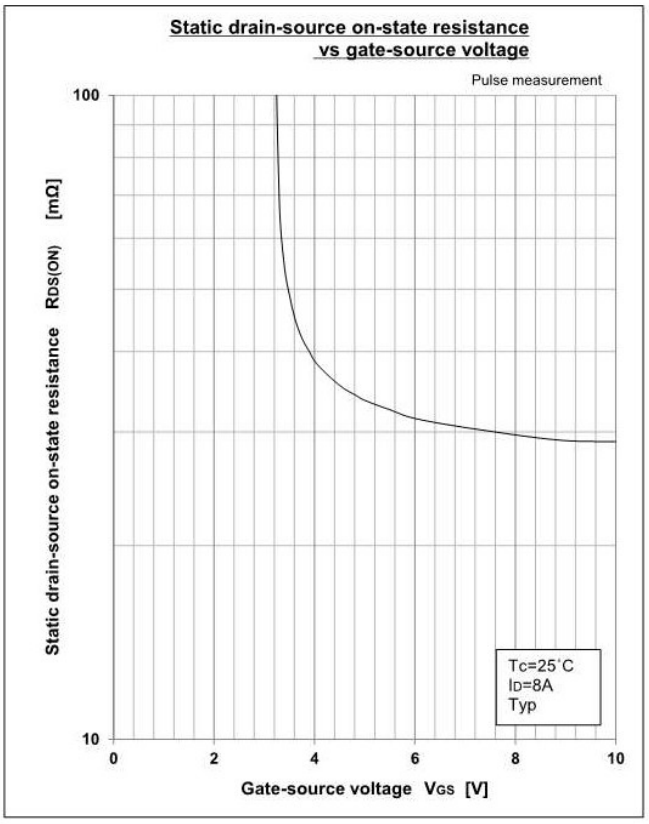

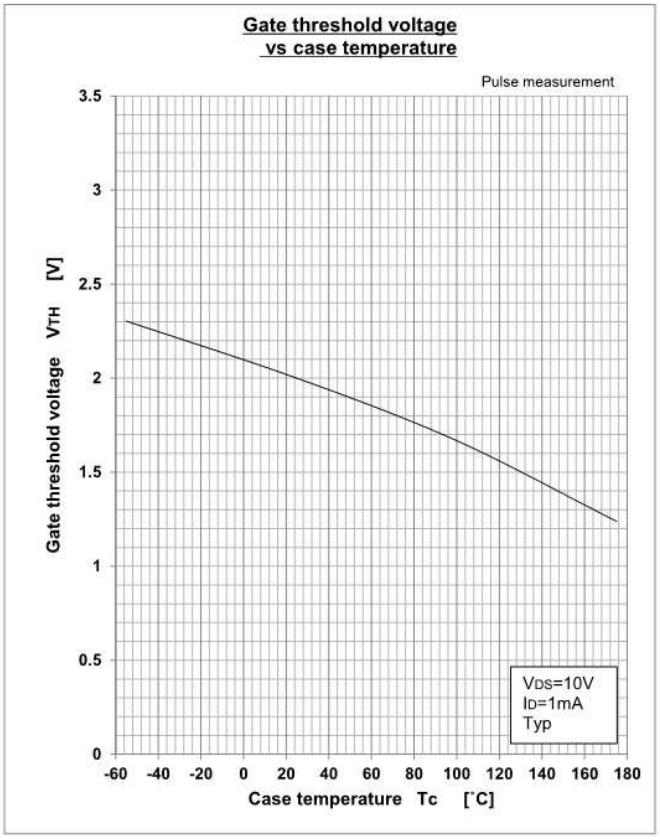

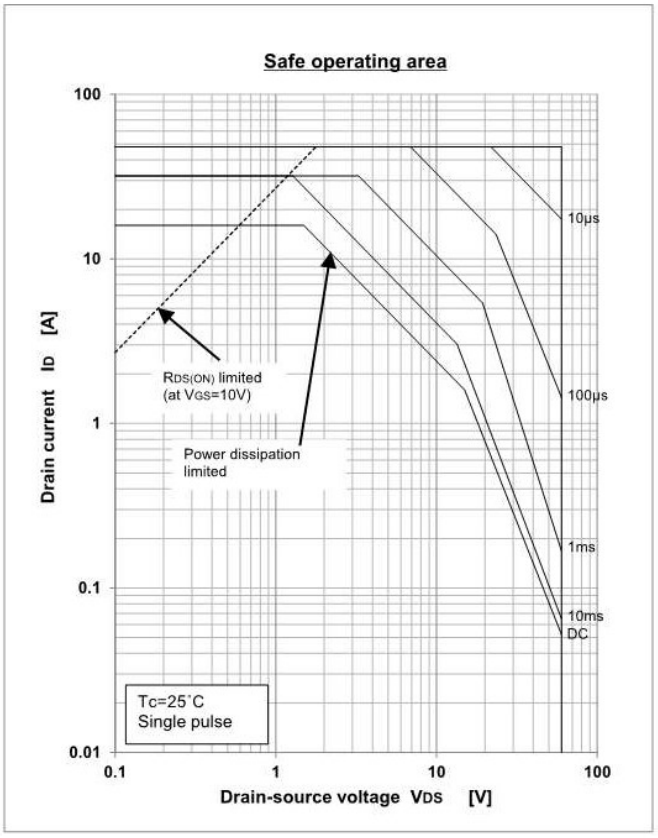

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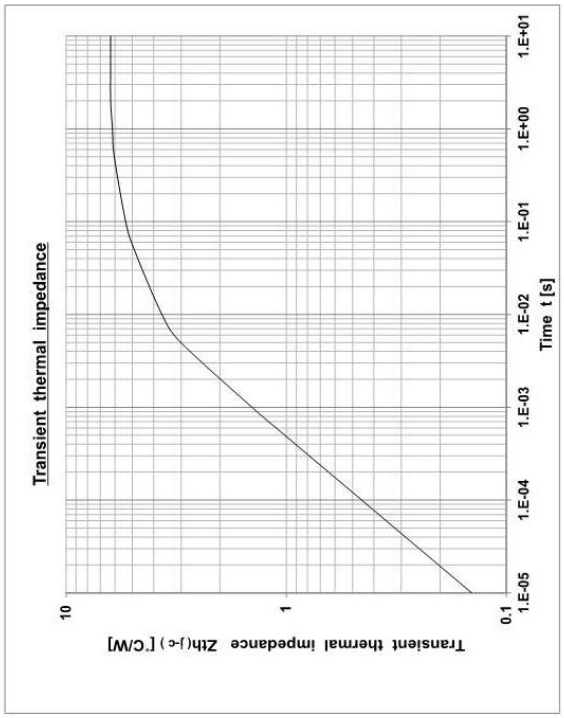

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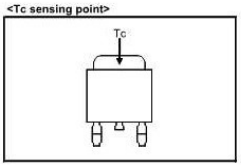
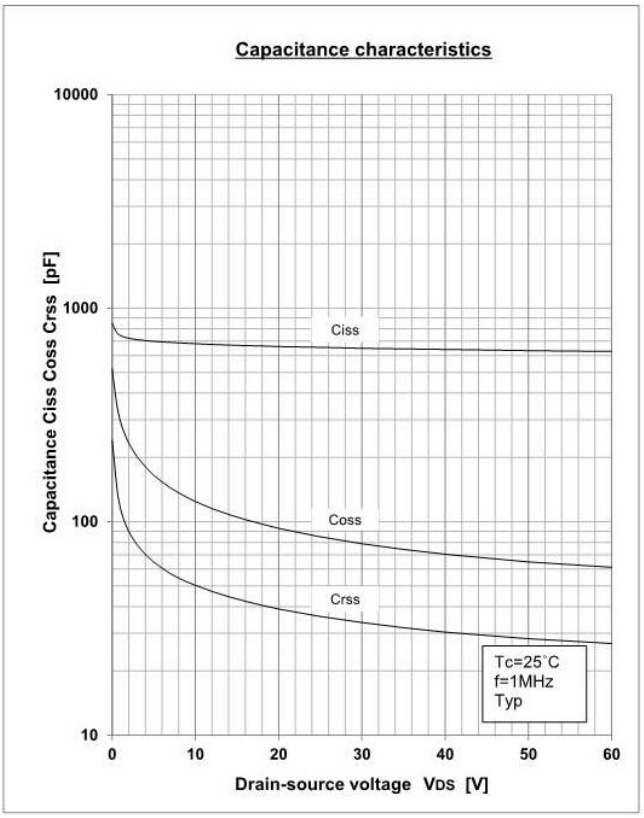
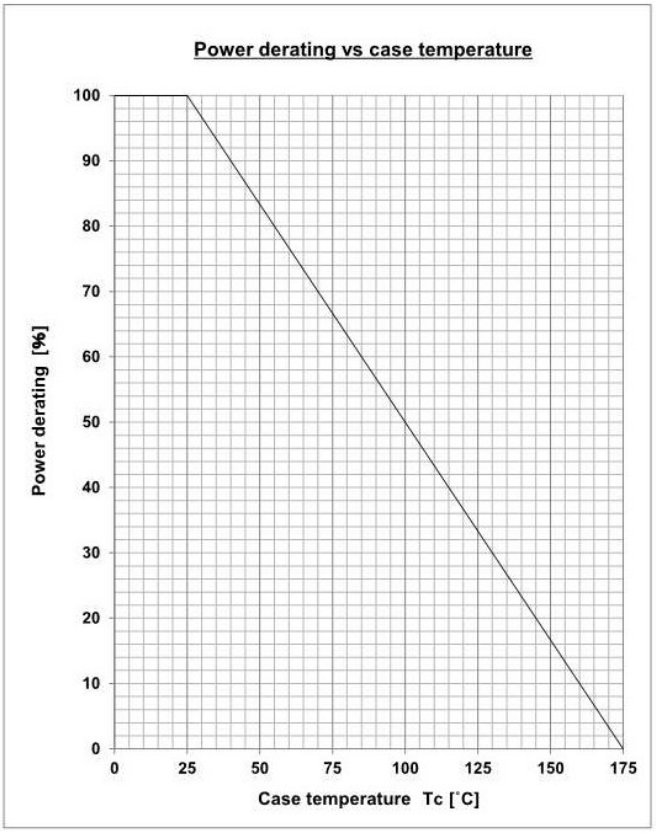
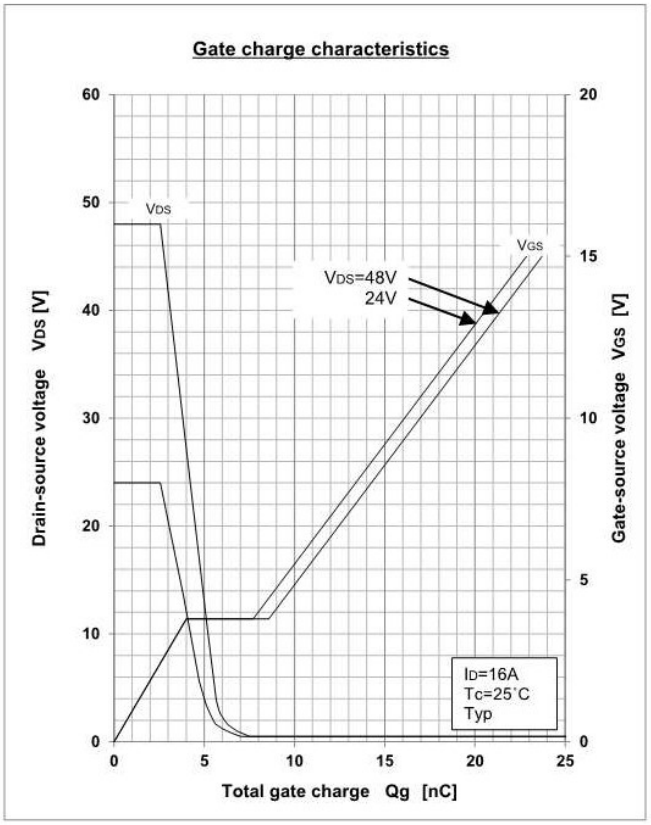


<Substrate detail>

Type	Alumina
Size	1 inch^2
Thickness	0.64 mm
Conductor thickness	20 μm
Pattern area	65 mm^2







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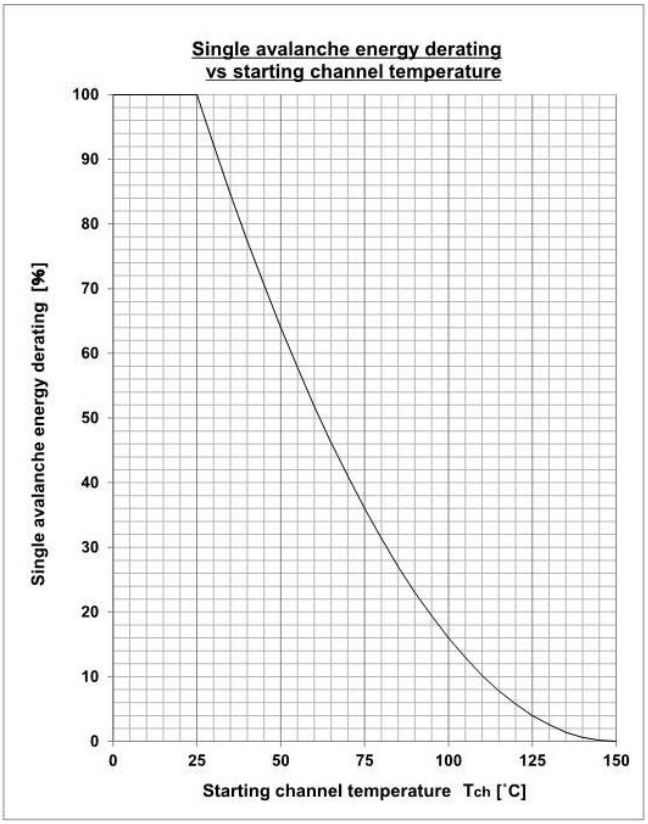

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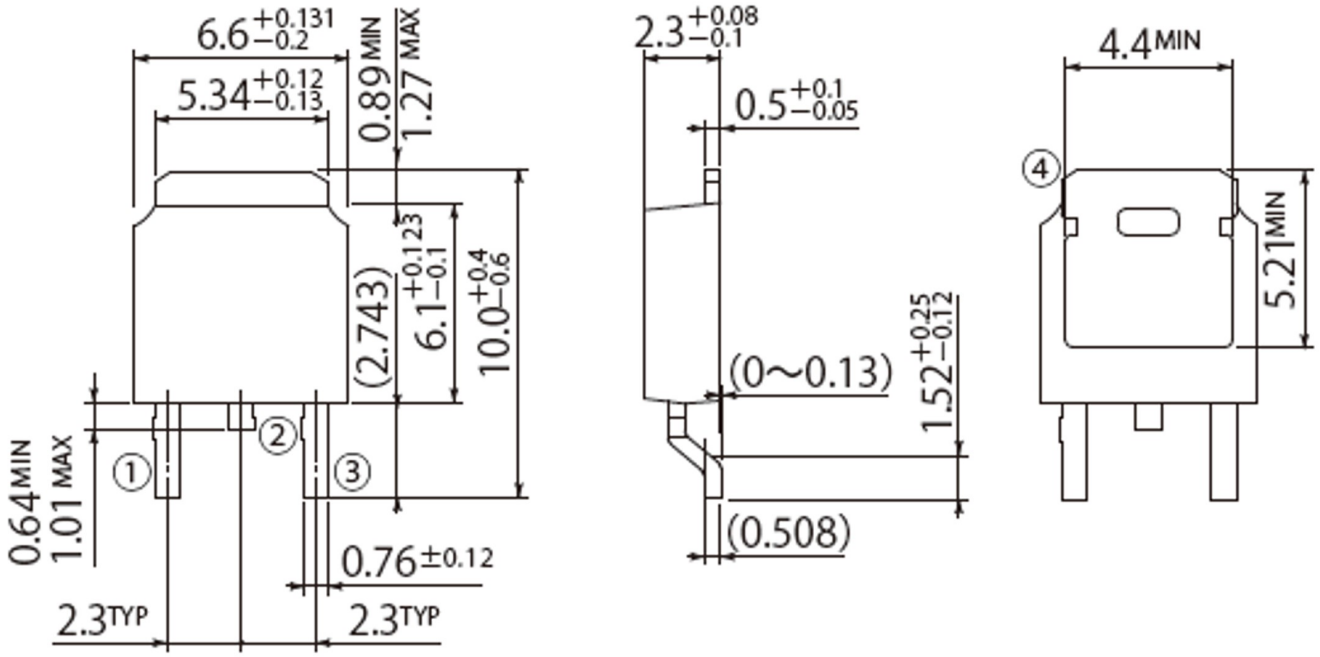
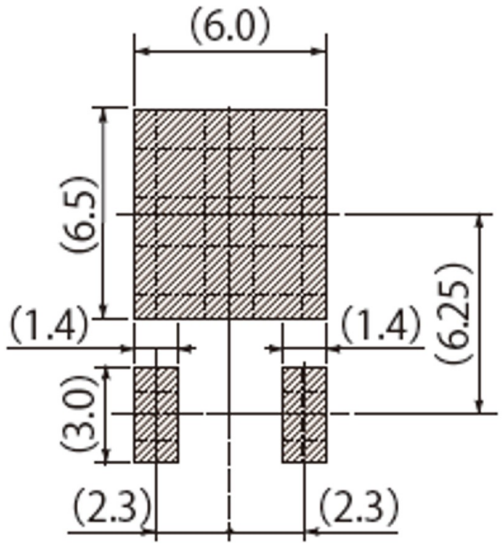
Outline Dimensions

unit:mm

G2

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





Referential Soldering Pad

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Notes

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