ShinDengen

P24B15SL

Power MOSFETs
150V, 24A, N-channel

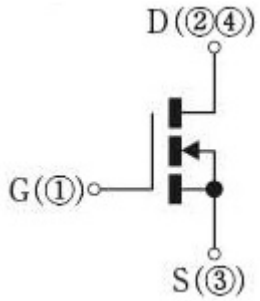
Feature

- 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℃)

Item	Symbol	Conditions	Ratings	Unit
Storage temperature	Tstg		-55 to 150	℃
Channel tempertature	Tch		-55 to 150	℃
Drain-source voltage	V_{DSS}		150	V
Gate-source voltage	V_{GSS}		±20	V
Continuous drain current(DC)	I_D		24	A
Continuous drain current(Peak)	I_{DP}	Pulse width 10μs, duty=1/100	72	A
Total power dissipation	P_T		62.5	W
Single avalanche current	I_{AS}	Starting Tch=25℃ Tch≦150℃	23	A
Single avalanche energy	E_{AS}	Starting Tch=25℃ Tch≦150℃	62	mJ

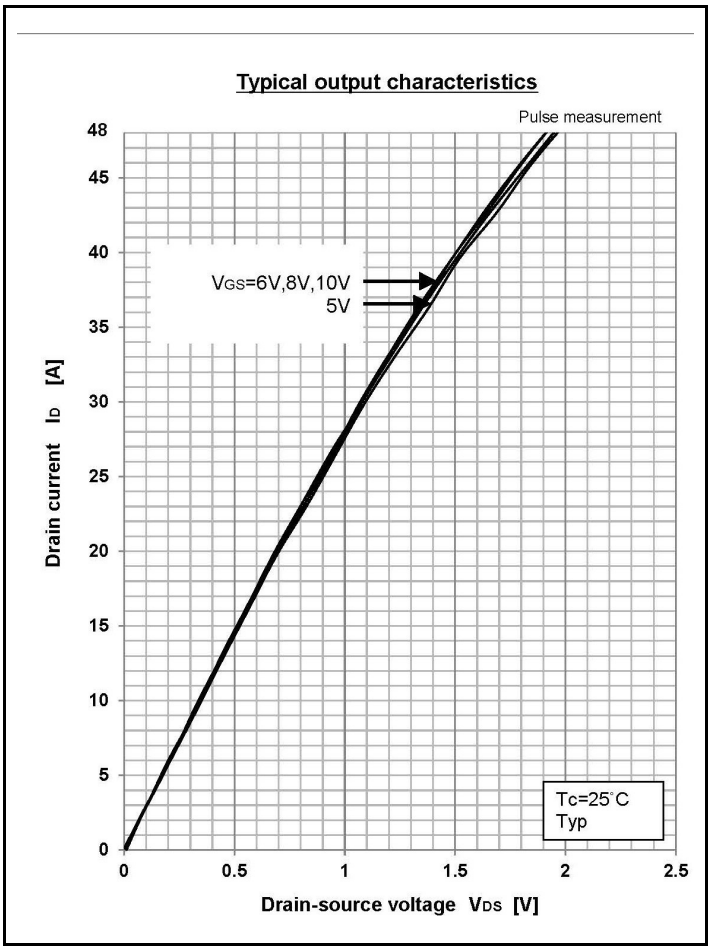
※ ：See the original Specifications

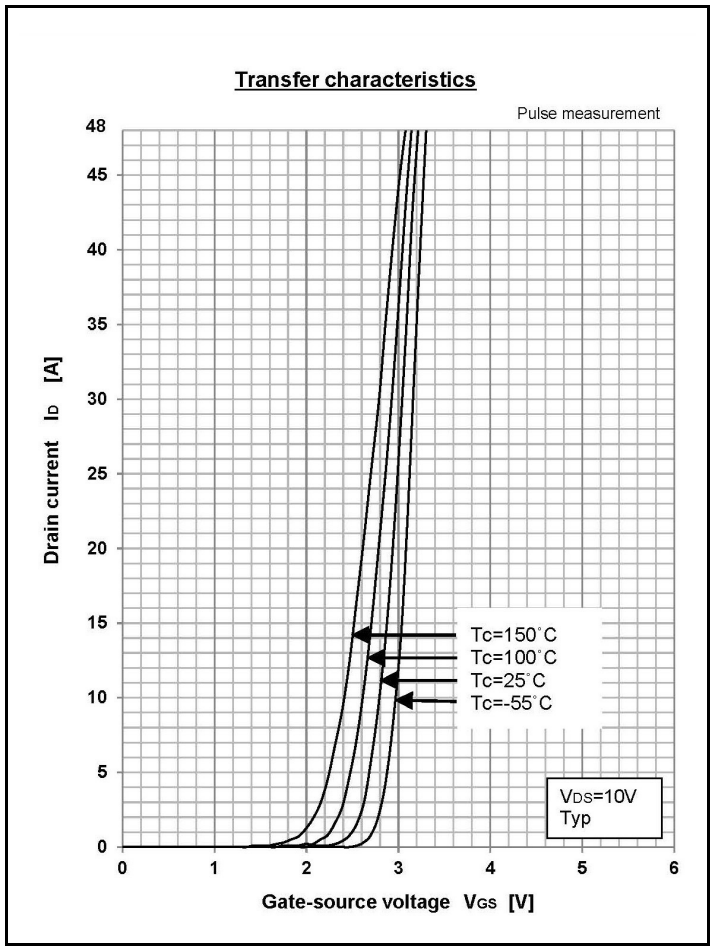
Electrical Characteristics (unless otherwise specified : Tc=25°C)

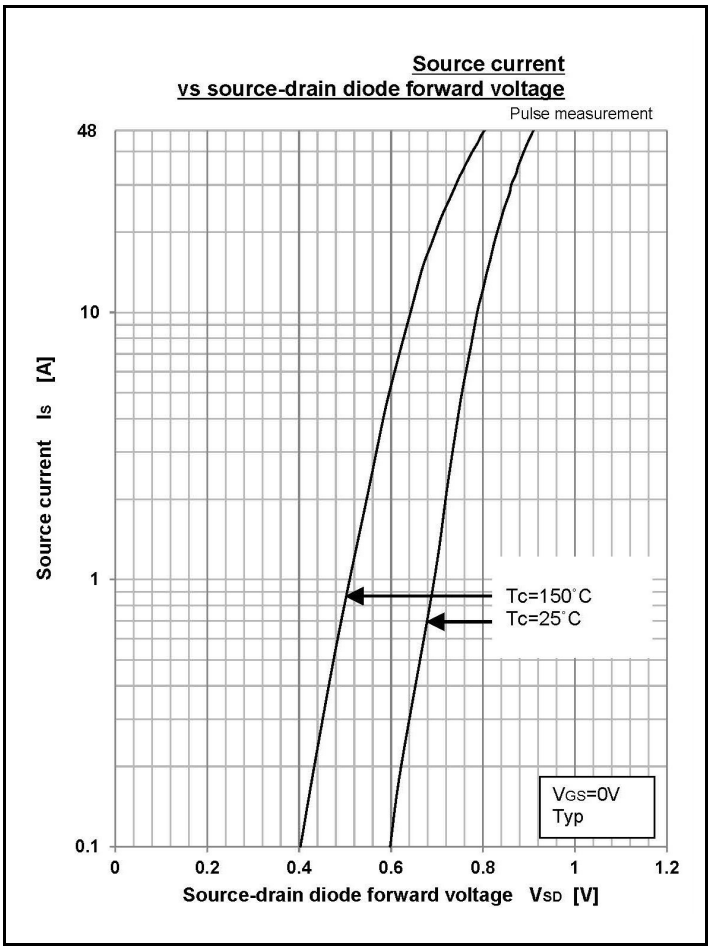
Item	Symbol	Conditions	Ratings			Unit
			MIN	TYP	MAX	
Drain-Source breakdown voltage	$V_{(BR)DSS}$	ID=1mA, VGS=0V	150			V
Zero gate voltage drain current	I_{DSS}	VDS=150V, VGS=0V			1	μA
Gate-source leakage current	I_{GSS}	VGS=±20V, VDS=0V			±0.1	μA
Forward transconductance	g_{fs}	ID=12A, VDS=10V	13	26		S
Static drain-source on-state resistance	$R_{DS(ON)}$	ID=12A, VGS=10V		0.032	0.04	Ω
Static drain-source on-state resistance	$R_{DS(ON)}$	ID=12A, VGS=4.5V		0.033	0.044	Ω
Gate threshold voltage	Vth	ID=1mA, VDS=10V	1.5	2	2.5	V
Source-drain diode forward voltage	V_{SD}	IS=24A, VGS=0V			1.5	V
Thermal resistance	Rth(j-c)	Junction to case, with heatsink ※			2	°C/W
Total gate charge	Qg	VDD=120V, VGS=10V, ID=24A		71		nC
Gate to source charge	Qgs	VDD=120V, VGS=10V, ID=24A		12		nC
Gate to drain charge	Qgd	VDD=120V, VGS=10V, ID=24A		19		nC
Input capacitance	Ciss	VDS=25V, VGS=0V, f=1MHz		3466		pF
Reverce transfer capacitnce	Crss	VDS=25V, VGS=0V, f=1MHz		94		pF
Output capacitance	Coss	VDS=25V, VGS=0V, f=1MHz		194		pF
Turn-on delay time	td(on)	ID=12A, RL=6.25Ω, VDD=75V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V		5.5		ns
Rise time	tr	ID=12A, RL=6.25Ω, VDD=75V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V		11		ns
Turn-off delay time	td(off)	ID=12A, RL=6.25Ω, VDD=75V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V		57		ns
Fall time	tf	ID=12A, RL=6.25Ω, VDD=75V, Rg=0Ω, VGS(+)=10V, VGS(-)=0V		29		ns
Diode reverse recovery time	trr	IF=24A, VGS=0V, di/dt=100A/μs		68		ns
Diode reverse recovery charge	Qrr	IF=24A, VGS=0V, di/dt=100A/μs		169		nC

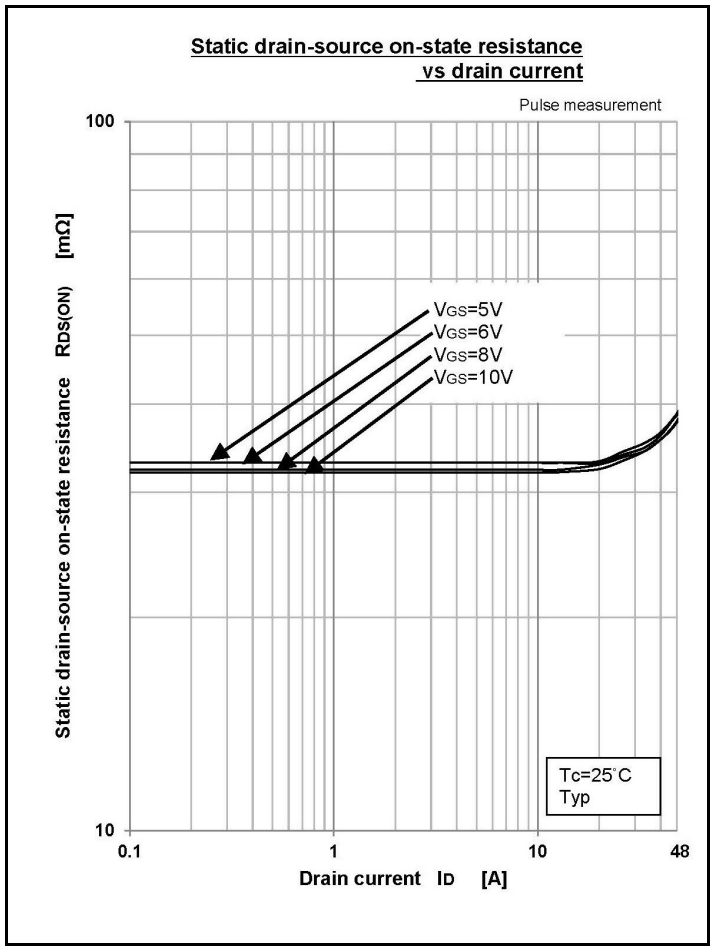
※ ：See the original Specifications

CHARACTERISTIC DIAGRAMS

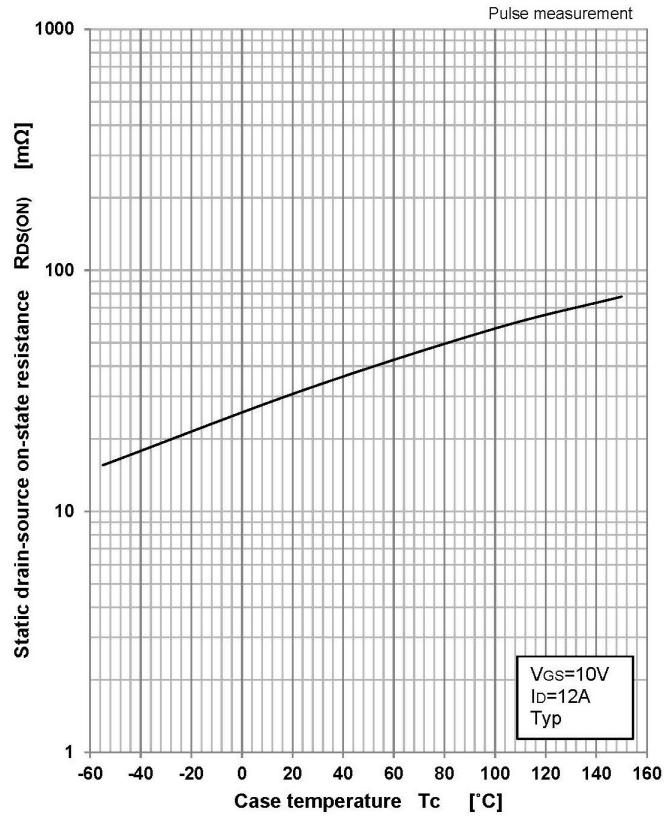




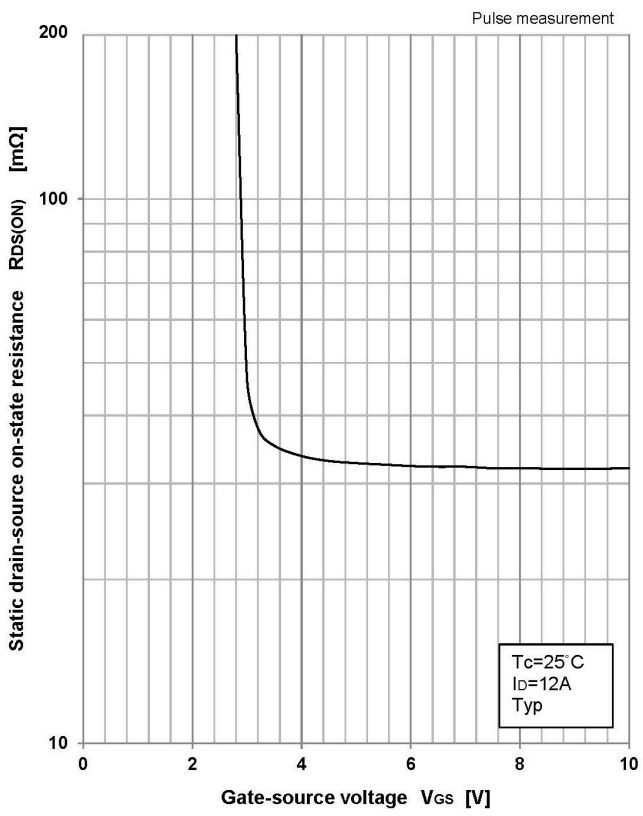




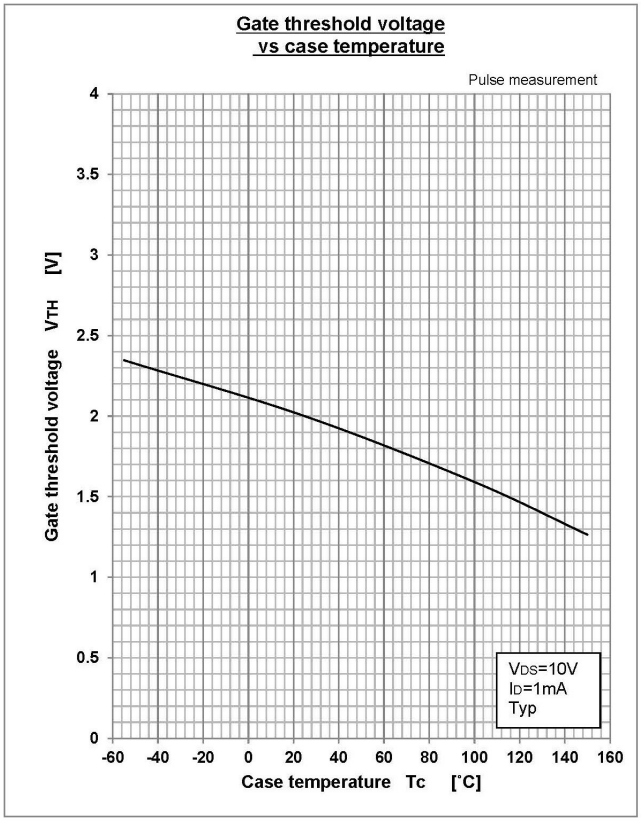
Static drain-source on-state resistance vs case temperature



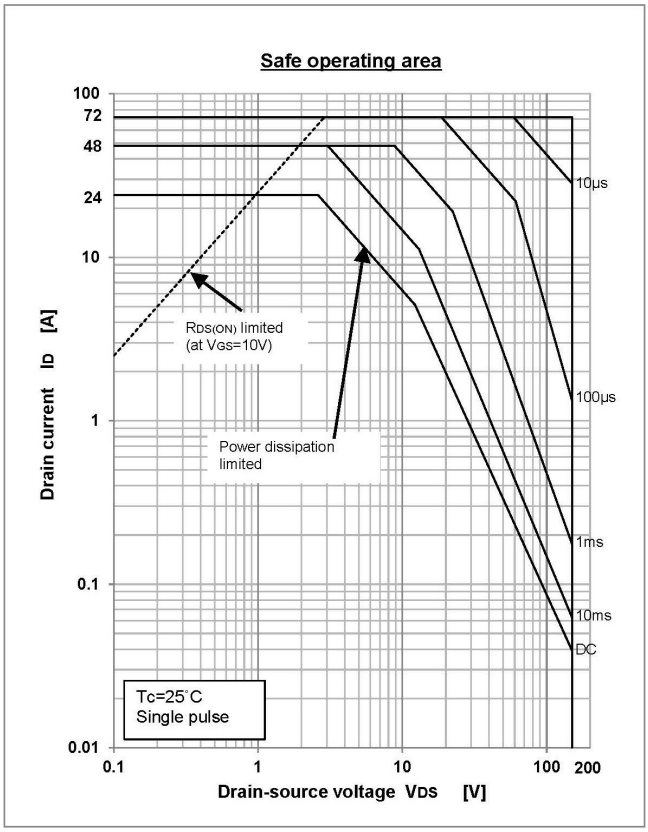
Static drain-source on-state resistance vs gate-source voltage

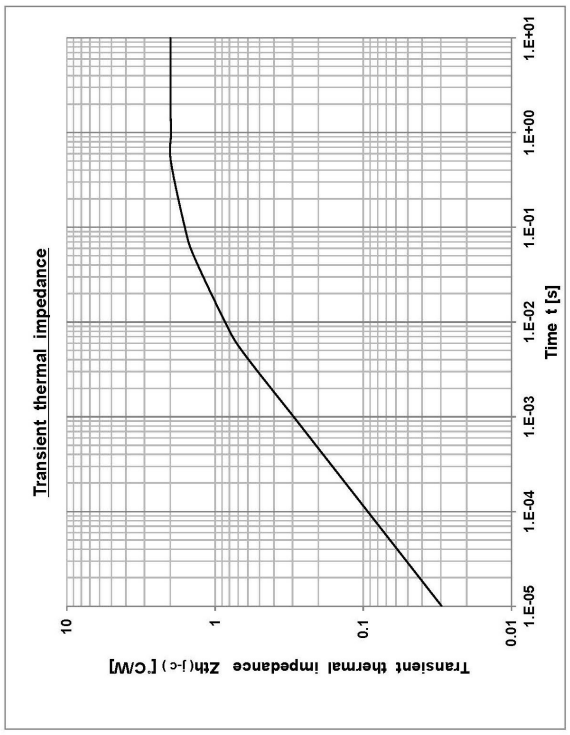


Gate threshold voltage vs case temperature

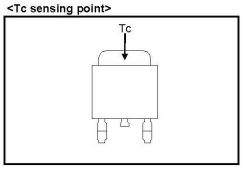


Safe operating area





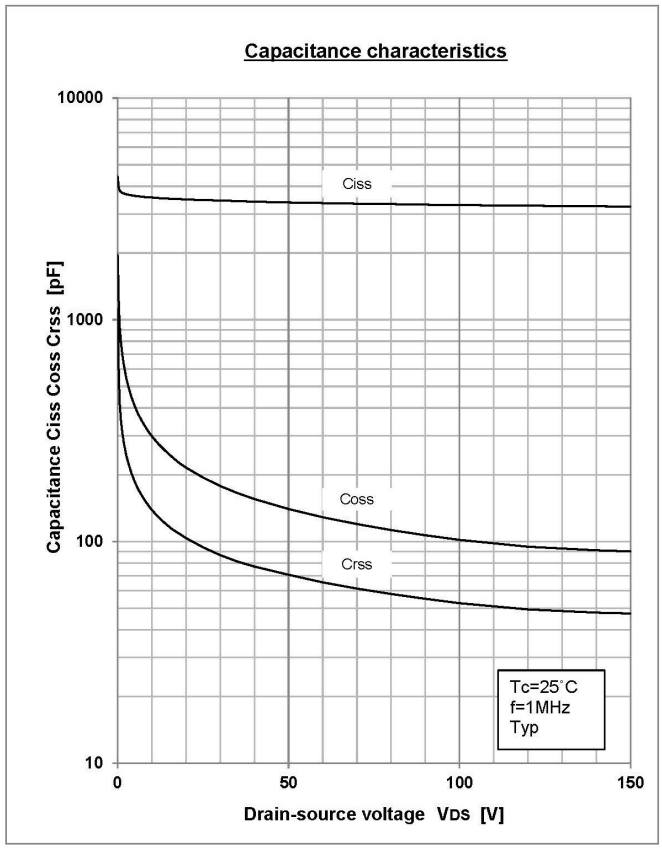
<Tc sensing point>

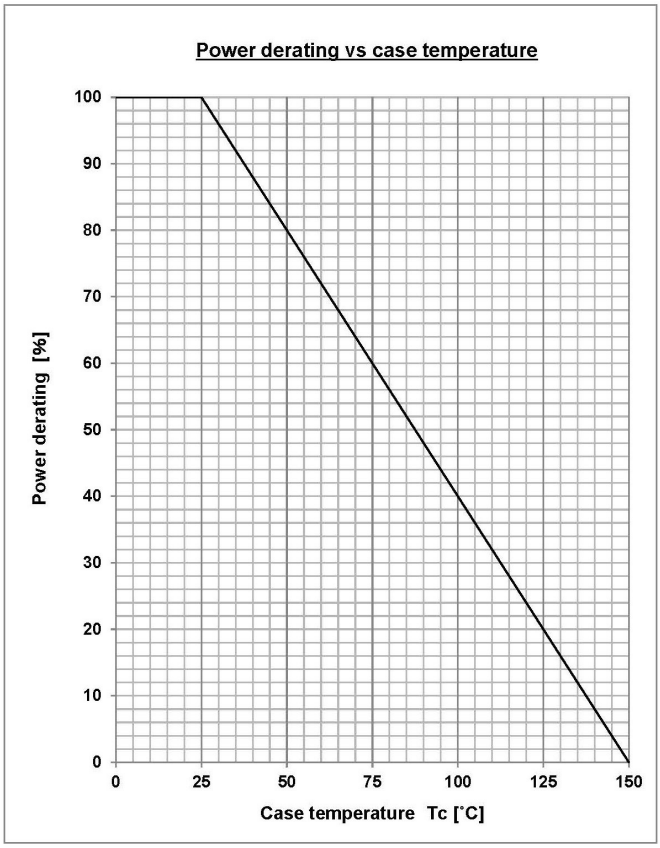


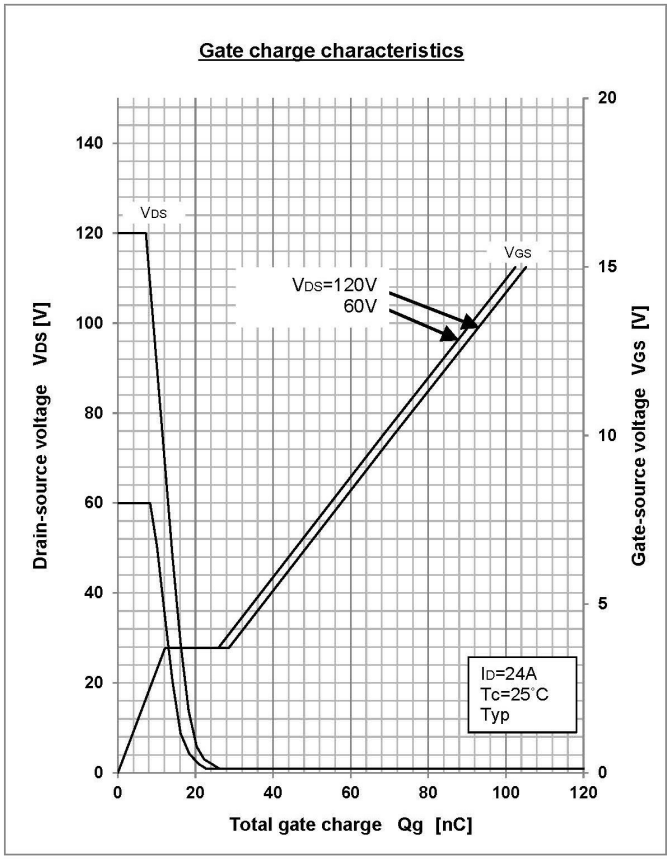
<Substrate detail>

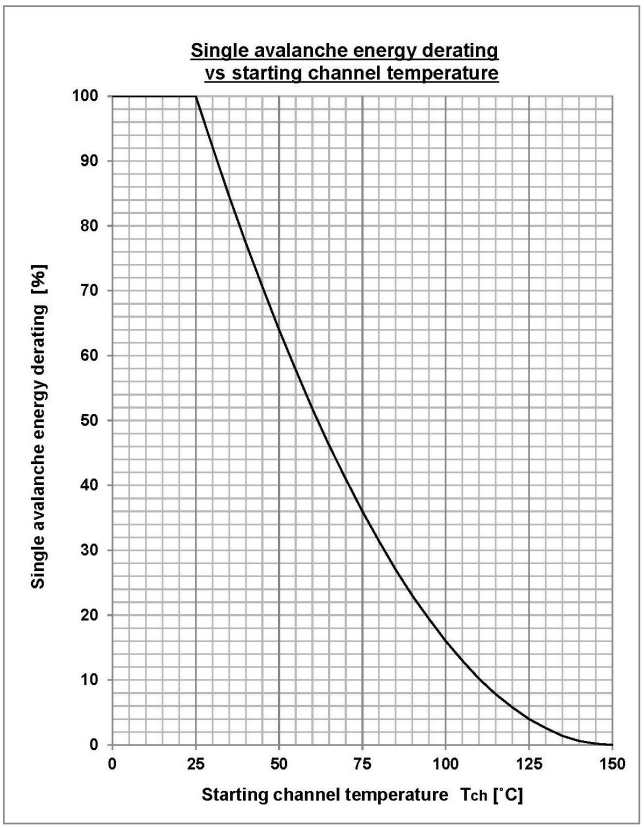
Type	Alumina
Size	1 inch^2
Thickness	0.64 mm
Conductor thickness	20 µm
Pattern area	65 mm^2

Specification No.







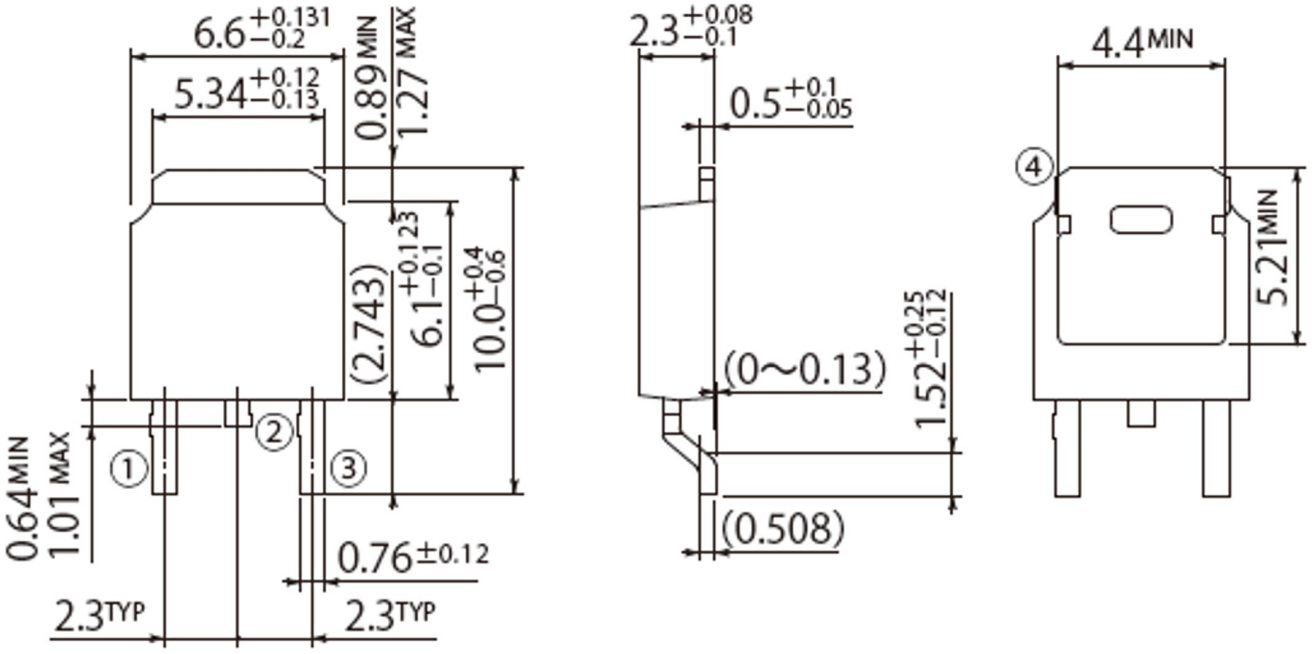

Single avalanche energy derating
vs starting channel temperature
Single avalanche energy derating [%]
100
90
80
70
60
50
40
30
20
10
0
0
25
50
75
100
125
150
Starting channel temperature Tch [°C]

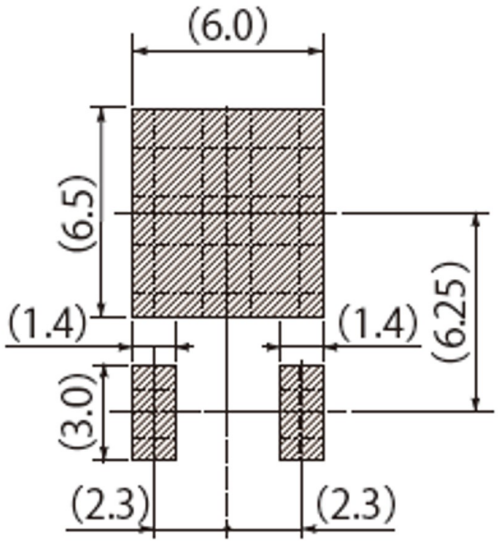
Outline Dimensions

unit:mm

G2

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





Referential Soldering Pad

Notes

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