ShinDengen

P3B28HP2

Power MOSFETs
280V, 3A, N-channel

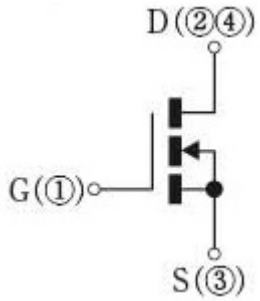
Feature

- N-channel
- SMD
- High Voltage
- Low Capacitance
- High Avalanche Durability, High di/dt Durability
- 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		150	℃
Drain-source voltage	V_{DSS}		280	V
Gate-source voltage	V_{GSS}		±30	V
Continuous drain current(DC)	I_D		3	A
Continuous drain current(Peak)	I_{DP}	Pulse width 10μs, duty=1/100	12	A
Continuous source current(DC)	Is		3	A
Total power dissipation	P_T		35	W
Repetitive avalanche current	I_{AR}	Starting Tch=25℃ Tch≦150℃	3	A
Single avalanche energy	E_{AS}	Starting Tch=25℃ Tch≦150℃	20	mJ
Repetitive avalanche energy	E_{AR}	Starting Tch=25℃ Tch≦150℃	2	mJ
Drain-source diode di/dt strength	di/dt	Is=3A, Tc=25℃	350	A/μs

※ ：See the original Specifications

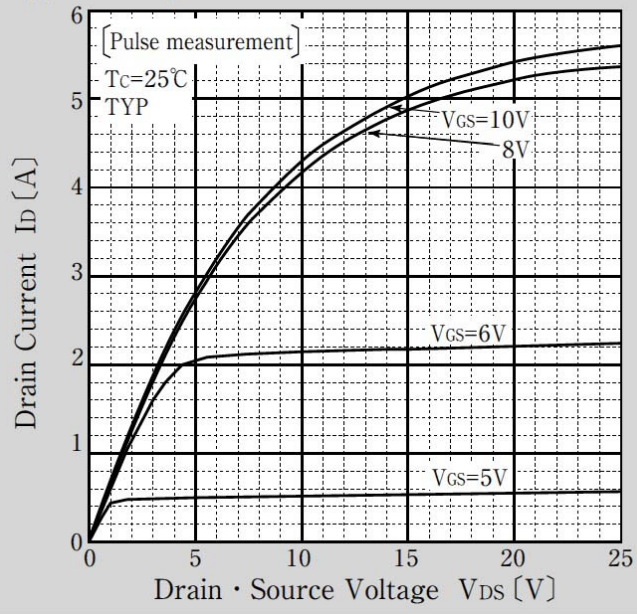
Electrical Characteristics (unless otherwise specified : Tc=25℃)

Item	Symbol	Conditions	Ratings			Unit
			MIN	TYP	MAX	
Drain-Source breakdown voltage	$V_{(BR)DSS}$	ID=1mA, VGS=0V	280			V
Zero gate voltage drain current	I_{DSS}	VDS=280V, VGS=0V			100	μA
Gate-source leakage current	I_{GSS}	VGS=±25V, VDS=0V			±10	μA
Forward transconductance	g_{fs}	ID=1.5A, VDS=10V	0.8	1.6		S
Static drain-source on-state resistance	$R_{DS(ON)}$	ID=1.5A, VGS=10V		1.7	2	Ω
Static drain-source on-state resistance	$R_{DS(ON)}$	ID=1.5A, VGS=8V		1.75	2.1	Ω
Gate threshold voltage	Vth	ID=1mA, VDS=10V	3	3.75	4.5	V
Source-drain diode forward voltage	V_{SD}	IS=1.5A, VGS=0V			1.5	V
Thermal resistance	Rth(j-c)	Junction to case			3.55	℃/W
Total gate charge	Qg	VDD=200V, VGS=10V, ID=3A		3.6		nC
Input capacitance	Ciss	VDS=50V, VGS=0V, f=1MHz		120		pF
Reverce transfer capacitnce	Crss	VDS=50V, VGS=0V, f=1MHz		4		pF
Output capacitance	Coss	VDS=50V, VGS=0V, f=1MHz		25		pF
Turn-on delay time	td(on)	ID=1.5A, RL=100Ω, VDD=150V, Rg=50Ω, VGS(+)=10V, VGS(-)=0V		9.5		ns
Rise time	tr	ID=1.5A, RL=100Ω, VDD=150V, Rg=50Ω, VGS(+)=10V, VGS(-)=0V		10		ns
Turn-off delay time	td(off)	ID=1.5A, RL=100Ω, VDD=150V, Rg=50Ω, VGS(+)=10V, VGS(-)=0V		22		ns
Fall time	tf	ID=1.5A, RL=100Ω, VDD=150V, Rg=50Ω, VGS(+)=10V, VGS(-)=0V		24		ns

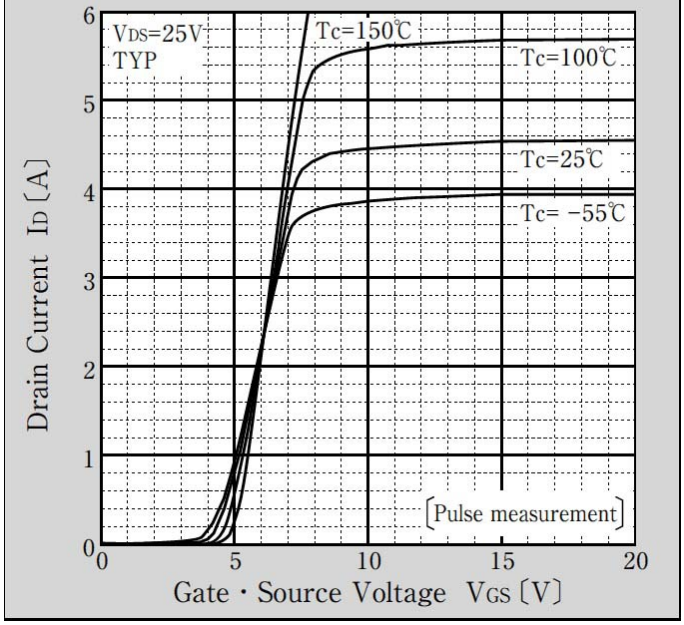
※ ：See the original Specifications

CHARACTERISTIC DIAGRAMS

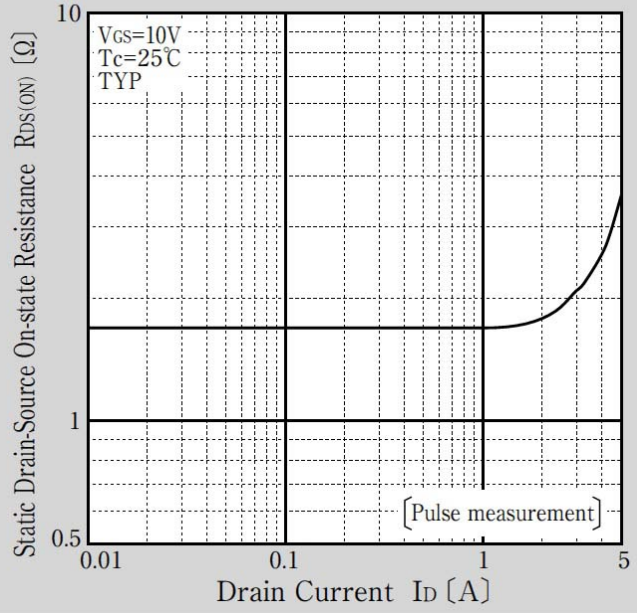
Typical Output Characteristics



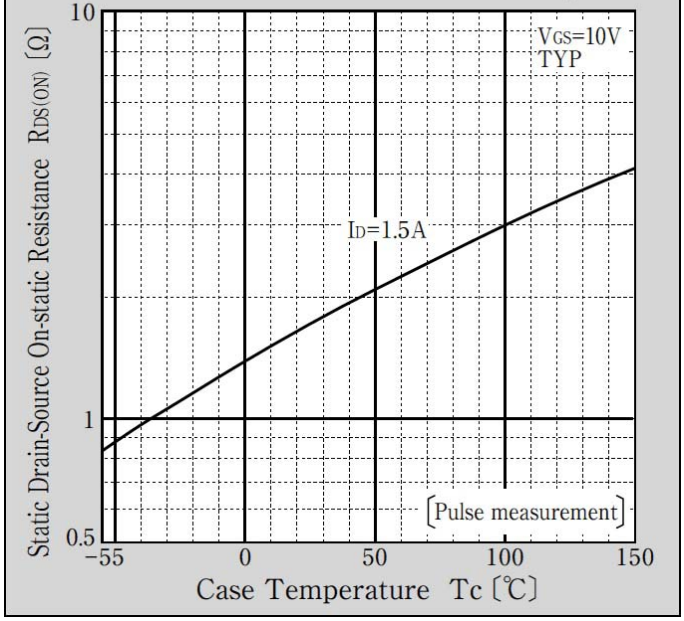
Transfer Characteristics



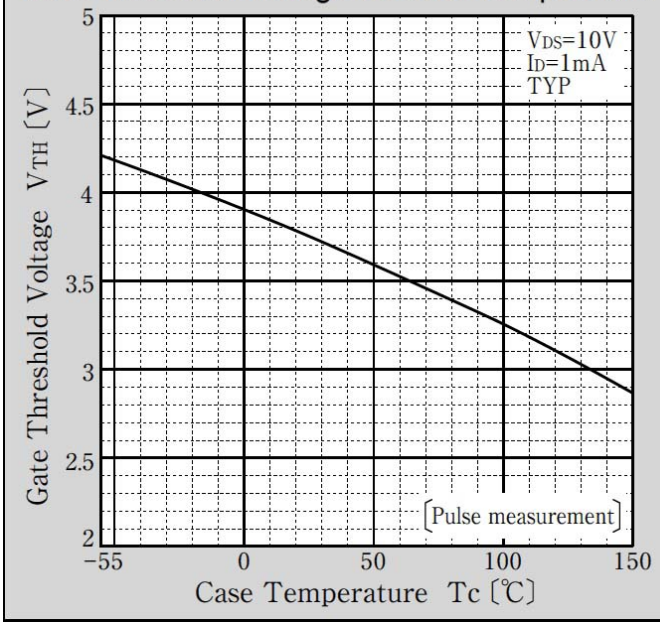
Static Drain-Source On-state Resistance vs Drain Current



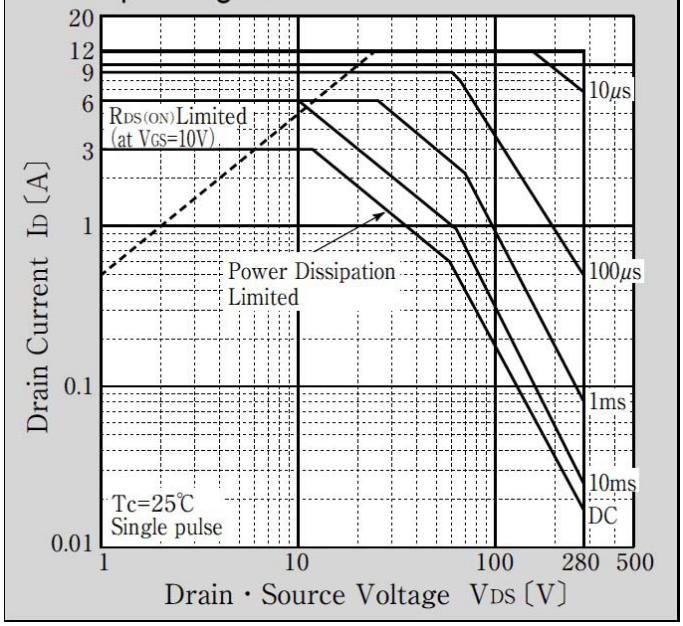
Static Drain-Source On-static Resistance vs Case Temperature



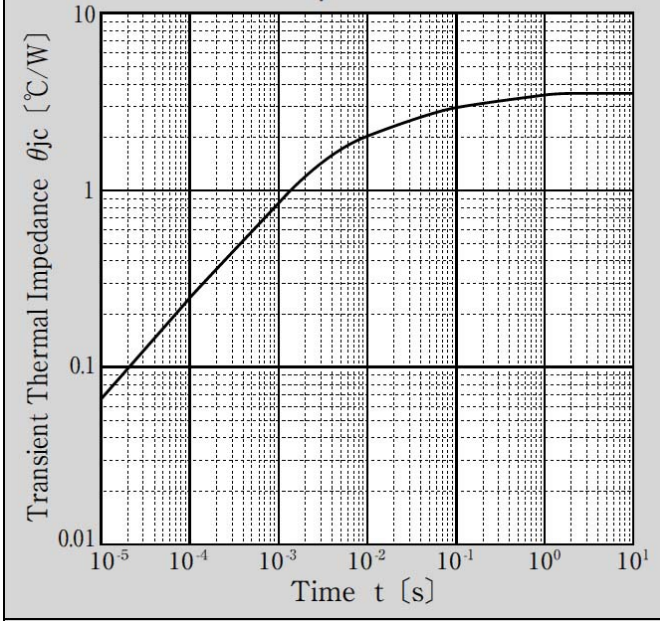
Gate Threshold Voltage vs Case Temperature



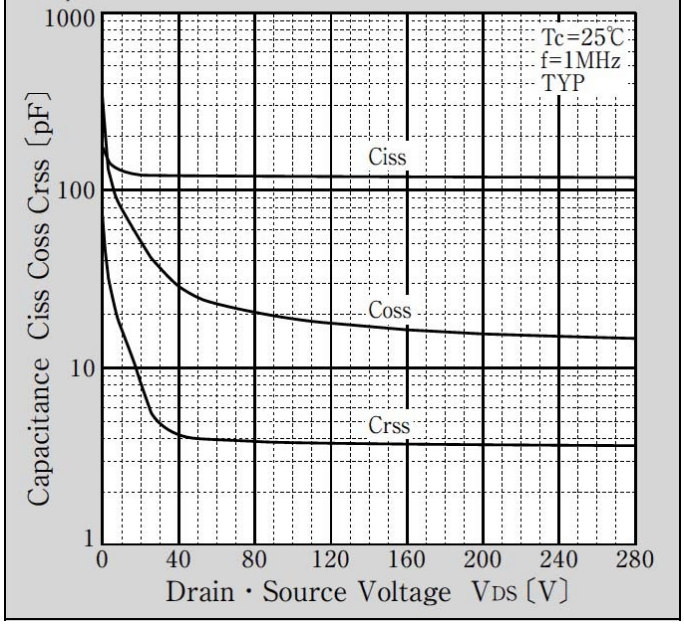
Safe Operating Area

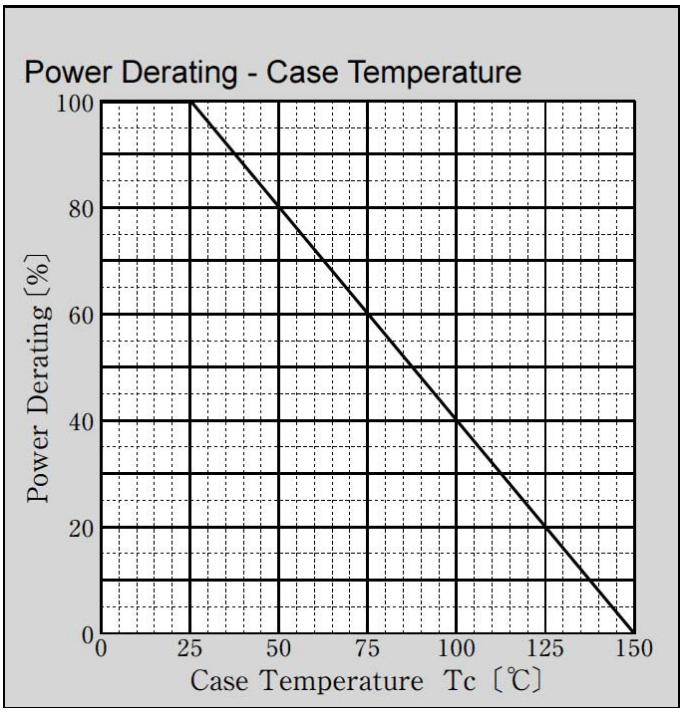


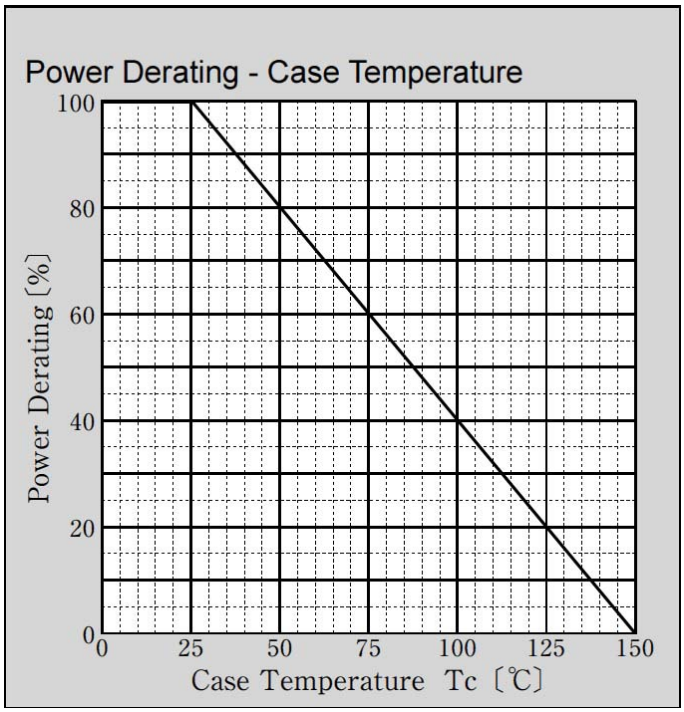
Transient Thermal Impedance

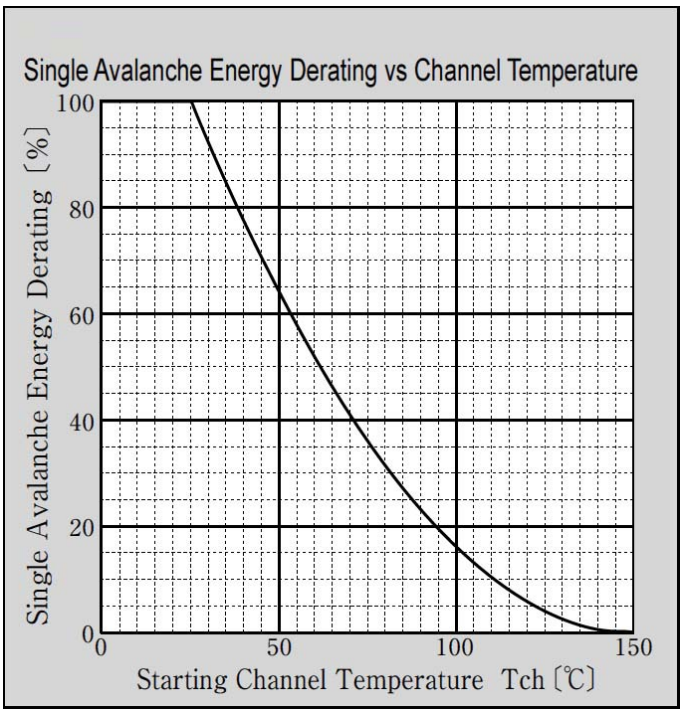


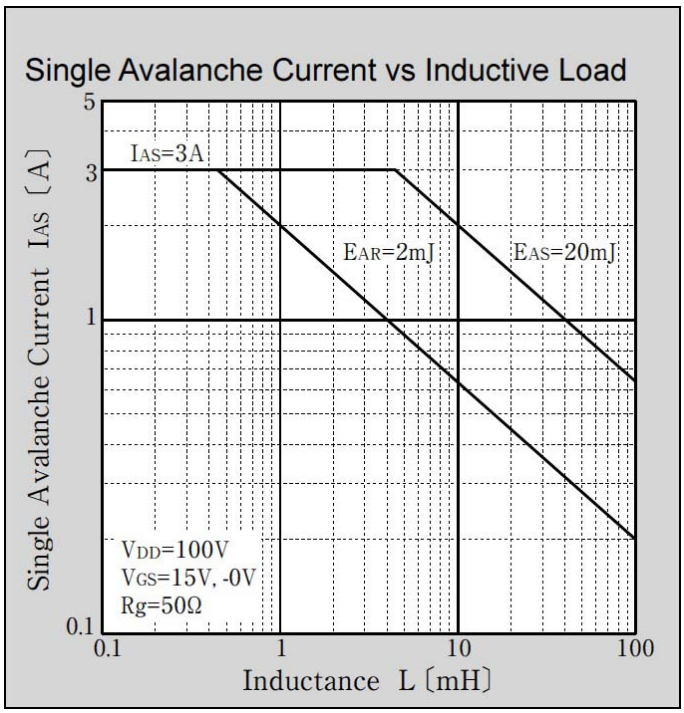
Capacitance Characteristics




Power Derating - Case Temperature
Power Derating〔%〕
100
80
60
40
20
0
0
25
50
75
100
125
150
Case Temperature Tc〔℃〕


Power Derating - Case Temperature
Power Derating〔%〕
100
80
60
40
20
0
0
25
50
75
100
125
150
Case Temperature Tc〔℃〕


Single Avalanche Energy Derating vs Channel Temperature
Single Avalanche Energy Derating〔%〕
100
80
60
40
20
0
0
50
100
150
Starting Channel Temperature Tch〔℃〕

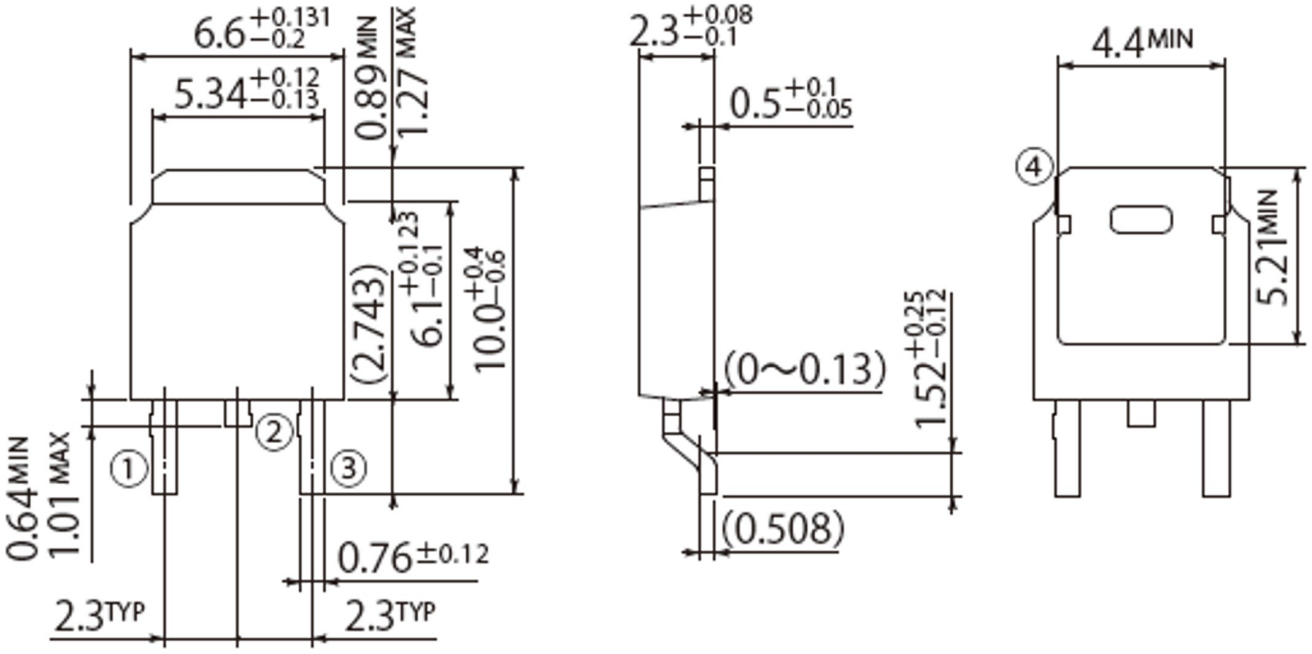

Single Avalanche Current vs Inductive Load
Single Avalanche Current IAS〔A〕
5
3
1
0.1
IAS=3A
EAR=2mJ
EAS=20mJ
VDD=100V
VGS=15V, -0V
Rg=50Ω
0.1
1
10
100
Inductance L〔mH〕

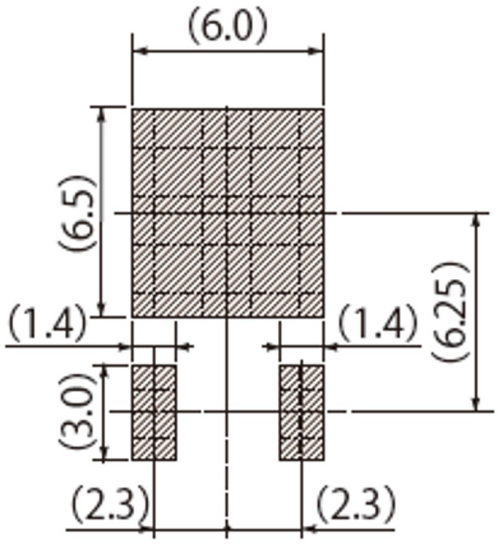
Outline Dimensions

unit:mm

G2

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





Referential Soldering Pad

Notes

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