



H5N2007FN

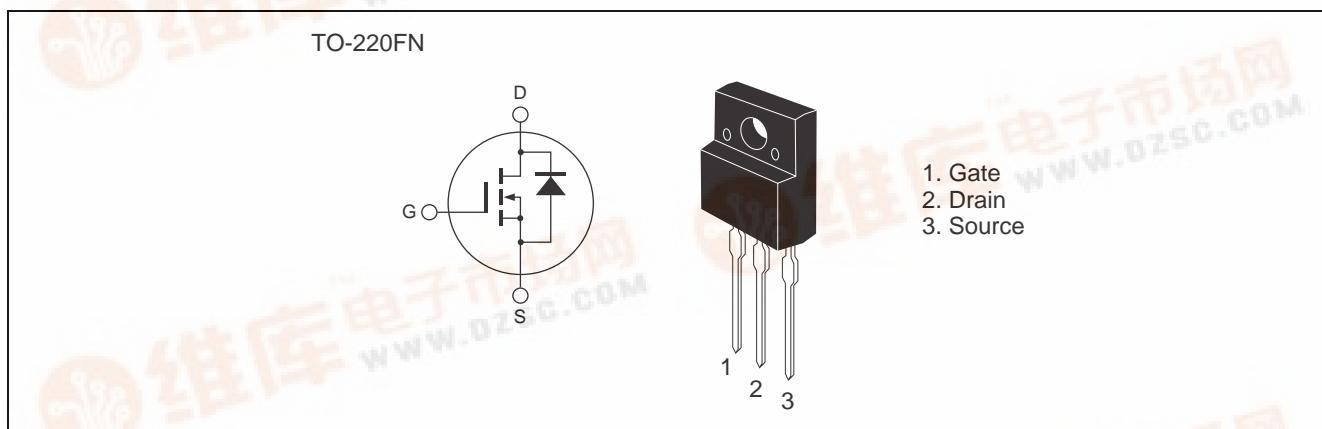
Silicon N Channel MOS FET
High Speed Power Switching

REJ03G0370-0100Z
Rev.1.00
May.28.2004

Features

- Low on-resistance
- Low leakage current
- High speed switching

Outline



Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to Source voltage	V _{DSS}	200	V
Gate to Source voltage	V _{GSS}	±30	V
Drain current	I _D	25	A
Drain peak current	I _D (pulse) ^{Note1}	100	A
Body-Drain diode reverse Drain current	I _{DR}	25	A
Body-Drain diode reverse Drain peak current	I _{DR} (pulse) ^{Note1}	100	A
Avalanche current	I _{AP} ^{Note3}	9	A
Avalanche energy	E _{AR} ^{Note3}	5.4	mJ
Channel dissipation	P _{ch} ^{Note2}	30	W
Channel to case thermal impedance	θ _{ch-c}	4.17	°C/W
Channel temperature	T _{ch}	150	°C
Storage temperature	T _{stg}	-55 to +150	°C

Notes: 1. PW ≤ 10 μs, duty cycle ≤ 1%

2. Value at T_c = 25°C

3. ST_{ch} = 25°C, T_{ch} ≤ 150°C

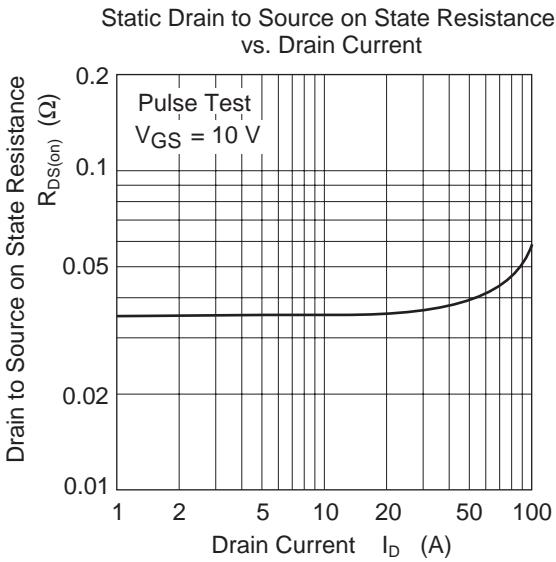
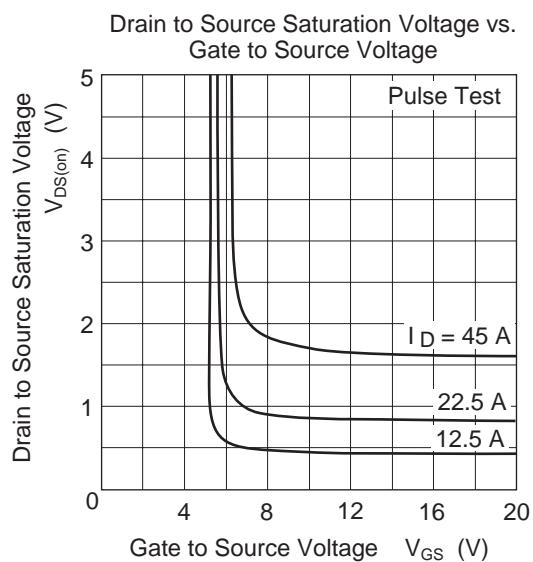
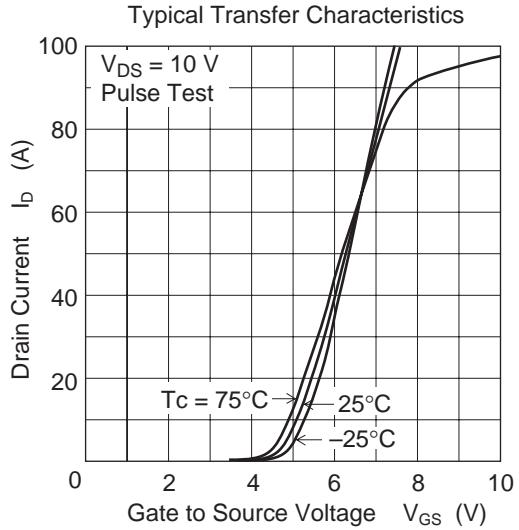
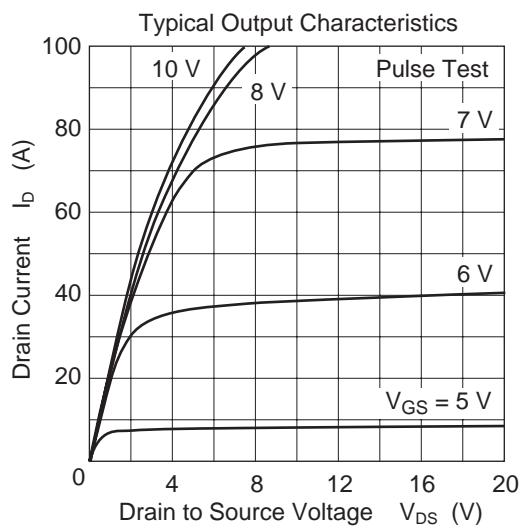
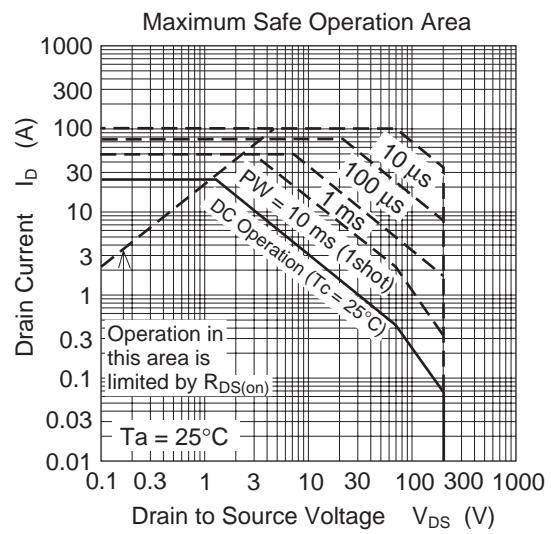
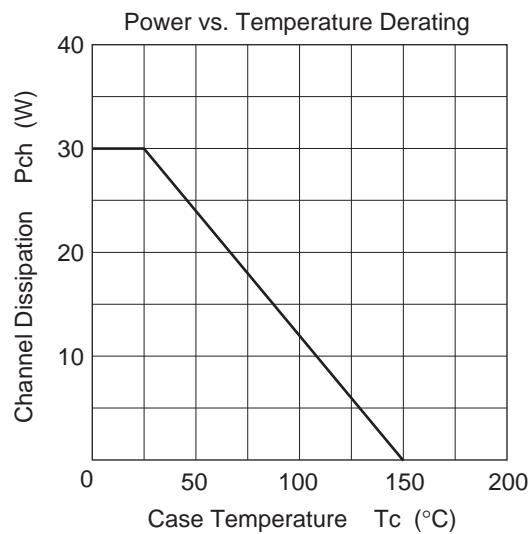
Electrical Characteristics

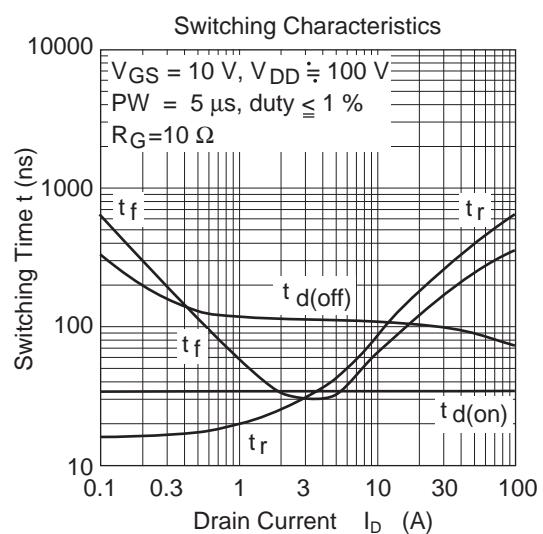
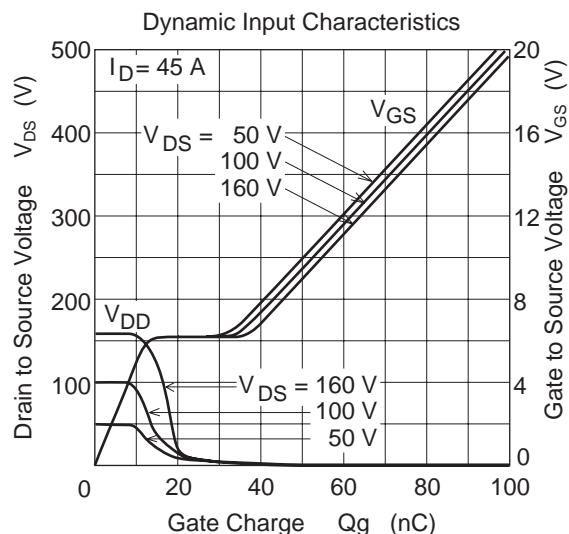
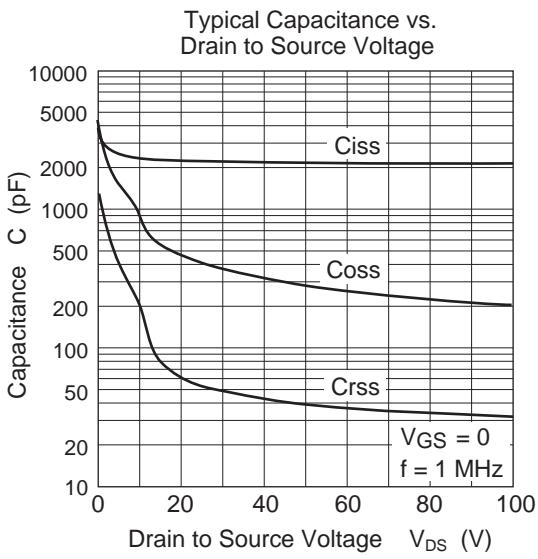
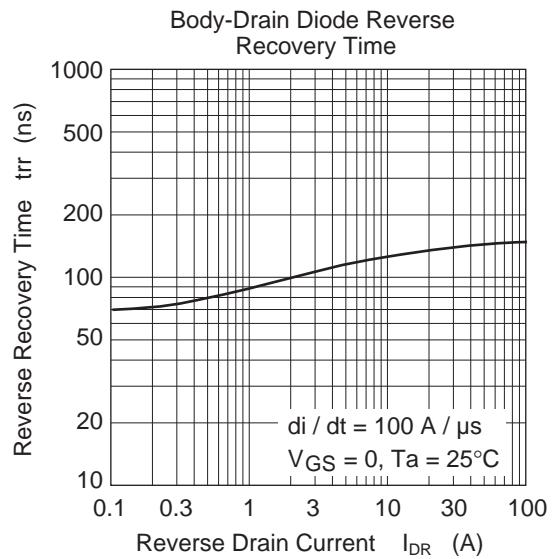
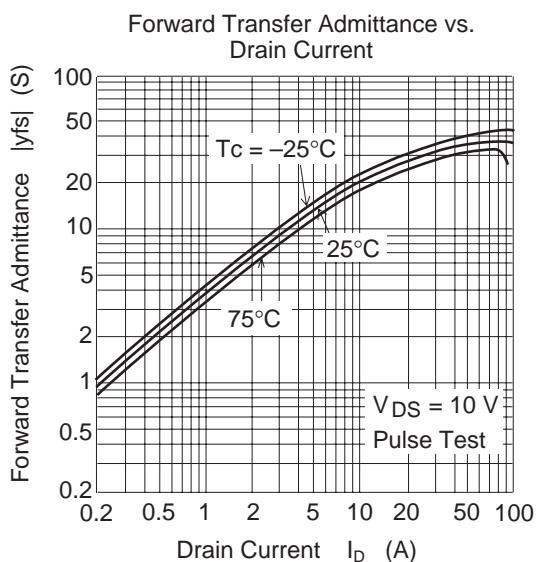
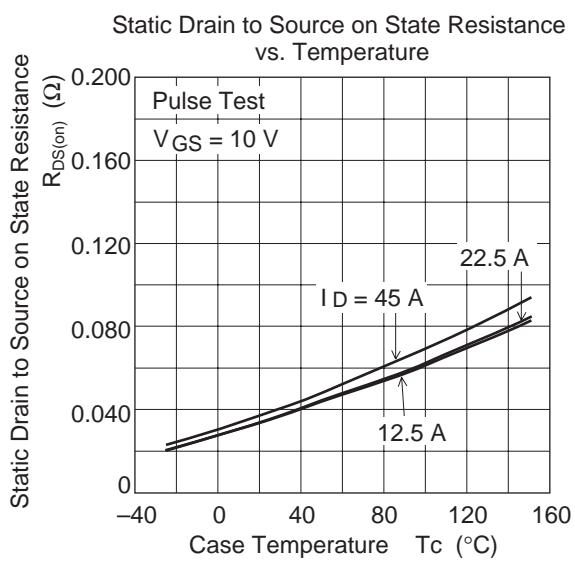
(Ta = 25°C)

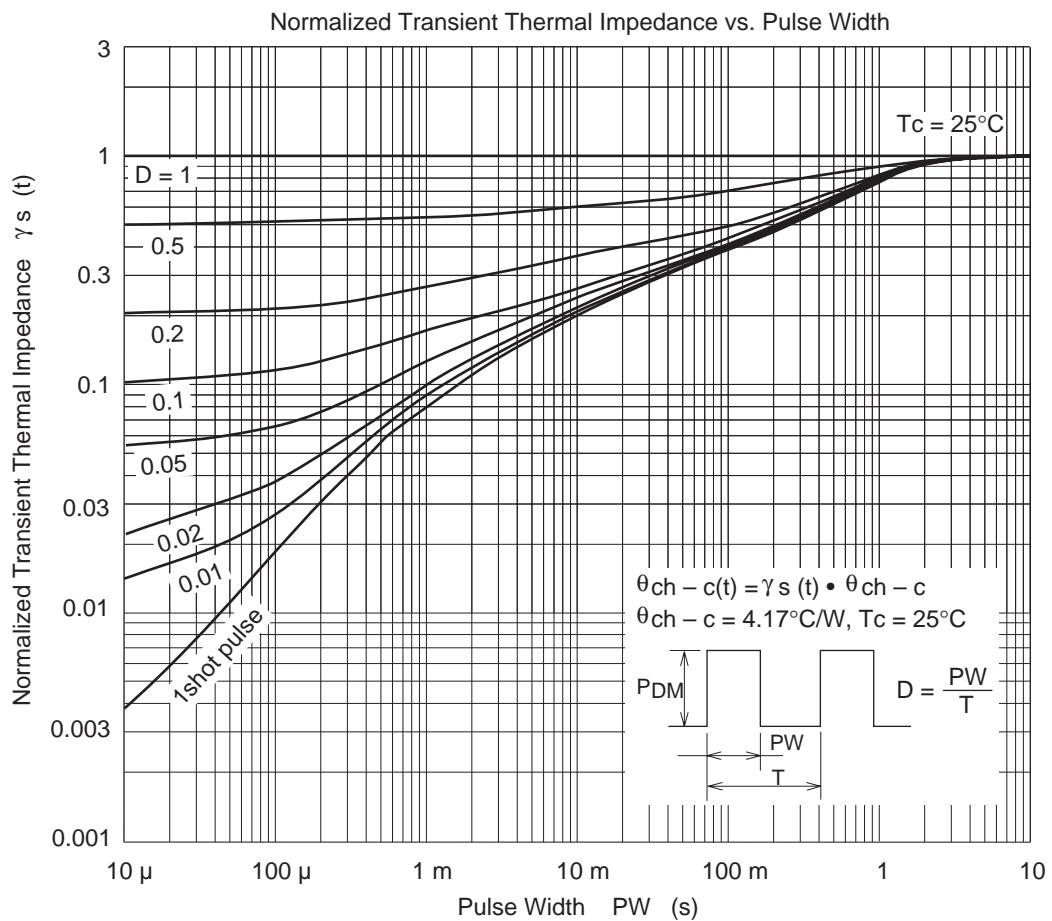
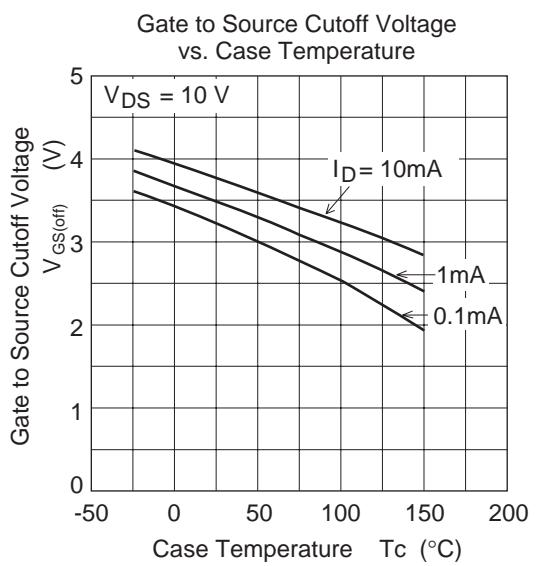
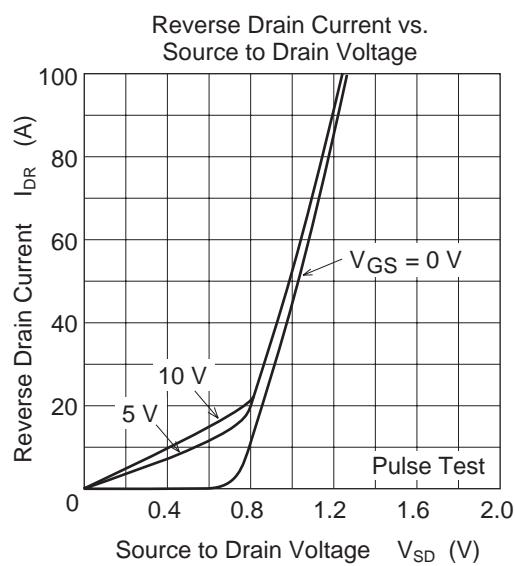
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to Source breakdown voltage	V _{(BR)DSS}	200	—	—	V	I _D = 10 mA, V _{GS} = 0
Zero Gate voltage drain current	I _{DSS}	—	—	1	μA	V _{DS} = 200 V, V _{GS} = 0
Gate to Source leak current	I _{GSS}	—	—	±0.1	μA	V _{GS} = ±30 V, V _{DS} = 0
Gate to Source cutoff voltage	V _{GS(off)}	3.0	—	4.0	V	V _{DS} = 10 V, I _D = 1 mA
Forward transfer admittance	y _{fs}	13	22	—	S	I _D = 12.5 A, V _{DS} = 10 V ^{Note4}
Static Drain to Source on state resistance	R _{DS(on)}	—	0.036	0.047	Ω	I _D = 12.5 A, V _{GS} = 10 V ^{Note4}
Input capacitance	C _{iss}	—	2200	—	pF	V _{DS} = 25 V V _{GS} = 0 f = 1 MHz
Output capacitance	C _{oss}	—	410	—	pF	
Reverse transfer capacitance	C _{rss}	—	54	—	pF	
Turn-on delay time	t _{d(on)}	—	35	—	ns	I _D = 12.5 A V _{GS} = 10 V R _L = 8 Ω R _g = 10 Ω
Rise time	t _r	—	120	—	ns	
Turn-off delay time	t _{d(off)}	—	110	—	ns	
Fall time	t _f	—	85	—	ns	
Total Gate charge	Q _g	—	56	—	nC	V _{DD} = 160 V V _{GS} = 10 V I _D = 25 A
Gate to Source charge	Q _{gs}	—	13	—	nC	
Gate to Drain charge	Q _{gd}	—	26	—	nC	
Body-Drain diode forward voltage	V _{DF}	—	0.9	1.5	V	I _F = 25 A, V _{GS} = 0 ^{Note4}
Body-Drain diode reverse recovery time	t _{rr}	—	140	—	ns	I _F = 25 A, V _{GS} = 0 dI/dt = 100 A/μs
Body-Drain diode reverse recovery charge	Q _{rr}	—	0.7	—	μC	

Notes: 4. Pulse test

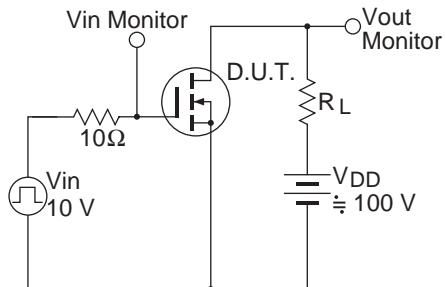
Main Characteristics



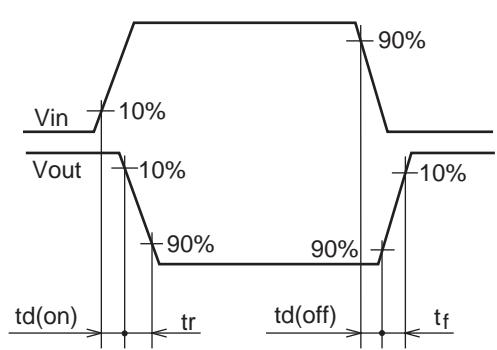




Switching Time Test Circuit



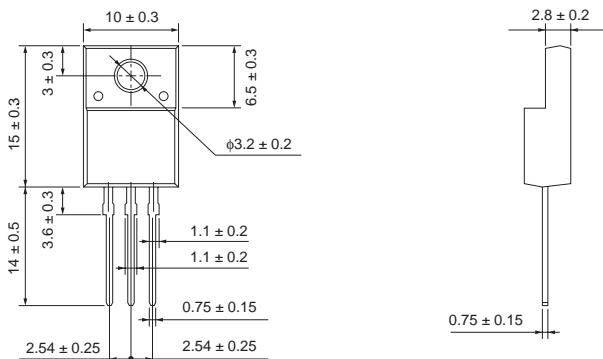
Waveform



Package Dimensions

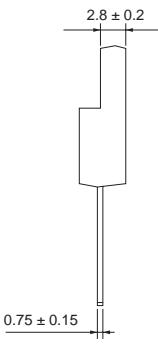
TO-220FN

EIAJ Package Code	JEDEC Code	Mass (g) (reference value)	Lead Material
—	—	2.0	Cu alloy



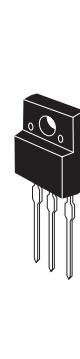
Front View Dimensions:

- Width: 10 ± 0.3
- Height: 15 ± 0.3
- Lead Spacing: 3.6 ± 0.3
- Lead Length: 2.54 ± 0.25
- Lead Width: 0.75 ± 0.15
- Lead Pitch: 1.1 ± 0.2
- Lead Thickness: 0.25 ± 0.05
- Lead Tolerance: 0.15 ± 0.05



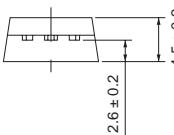
Side View Dimensions:

- Height: 6.5 ± 0.3
- Lead Spacing: 3.6 ± 0.3
- Lead Length: 2.54 ± 0.25
- Lead Width: 0.75 ± 0.15
- Lead Pitch: 1.1 ± 0.2
- Lead Thickness: 0.25 ± 0.05
- Lead Tolerance: 0.15 ± 0.05



Front View Dimensions:

- Width: 10 ± 0.3
- Height: 15 ± 0.3
- Lead Spacing: 3.6 ± 0.3
- Lead Length: 2.54 ± 0.25
- Lead Width: 0.75 ± 0.15
- Lead Pitch: 1.1 ± 0.2
- Lead Thickness: 0.25 ± 0.05
- Lead Tolerance: 0.15 ± 0.05



Bottom View Dimensions:

- Width: 4.5 ± 0.2
- Lead Thickness: 0.25 ± 0.05
- Lead Width: 0.75 ± 0.15

Symbol	Dimension in Millimeters		
	Min	Typ	Max
A	—	—	—
A ₁	—	—	—
A ₂	—	—	—
b	—	—	—
D	—	—	—
E	—	—	—
e	—	—	—
x	—	—	—
y	—	—	—
y ₁	—	—	—
ZD	—	—	—
ZE	—	—	—

Note 1) The dimensional figures indicate representative values unless otherwise the tolerance is specified.

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Part Name	Quantity	Shipping Container
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