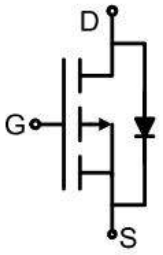
RECTRON SEMICONDUCTOR
TECHNICAL SPECIFICATION

RM13P100D3

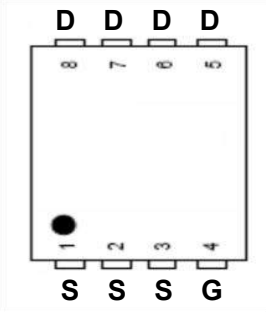
P-Channel Enhancement Mosfet

Features

- -100V,-13A
  $R_{DS(ON)}$ (TYP: 78mΩ) < 95mΩ @V_{GS} =-10V
  $R_{DS(ON)}$ (TYP: 86mΩ) < 110mΩ @V_{GS} = -4.5V
- Advanced Trench Technology
- Lead free product is acquired
- Low Gate Charge
- Excellent Cdv/dt effect decline



Schematic diagram



Pin Assignment

Application

- PWM applications
- Load Switch
- Power management
- Halogen-free

Package Marking and Ordering Information

Device Marking	Device	Package	Packaging Code	Reel Size	Quantity(Pcs)	Carton(Pcs)
13P100	RM13P100D3	DFN3X3	-W	13inch	5000	80000

ABSOLUTE MAXIMUM RATINGS (T_J=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current (Tc=25℃) (1)	I_D	-13	A
Continuous Drain Current (Tc=100℃)	I_D	-8.4	A
Pulsed Drain Current (1)	I_{DM}	-52	A
Drain Power Dissipation	P_D	29	W
Single Pulsed Avalanche Energy (2)	E_{AS}	132	mJ
Thermal Resistance from Junction to Ambient (3)	$R_{\theta JA}$	68	℃/W
Thermal Resistance from Junction to Case	$R_{\theta JC}$	4.3	℃/W
Junction Temperature	T_J	-55~ +150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

Notes:

2026-10/59
REV:O

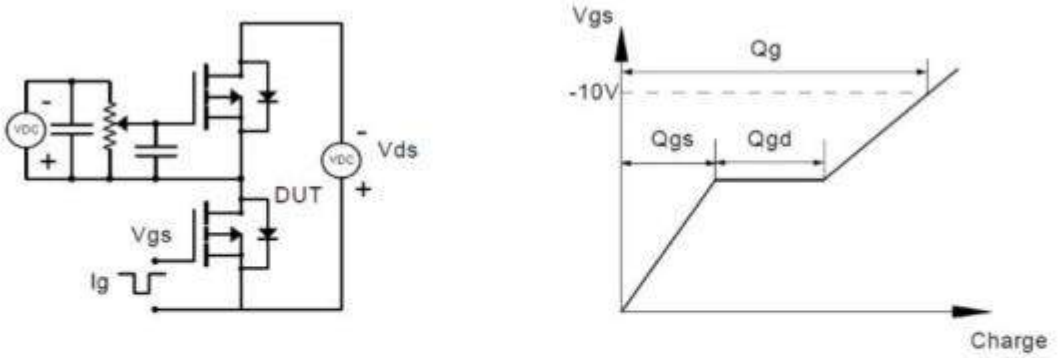
1) Repetitive Rating: pulse width limited by maximum junction temperature
2) EAS condition : T_J=25℃, V_{DD}=-50V, V_G=-10V, L=0.5mH, R_g=25Ω, I_{AS}=-23A
3) The value of RθJA Mounted on FR4 Board（25.4mm*25.4mm*t1.6mm）With 2oz Copper TA=25℃

MOSFET ELECTRICAL CHARACTERISTICS(T_J=25℃ unless otherwise noted)

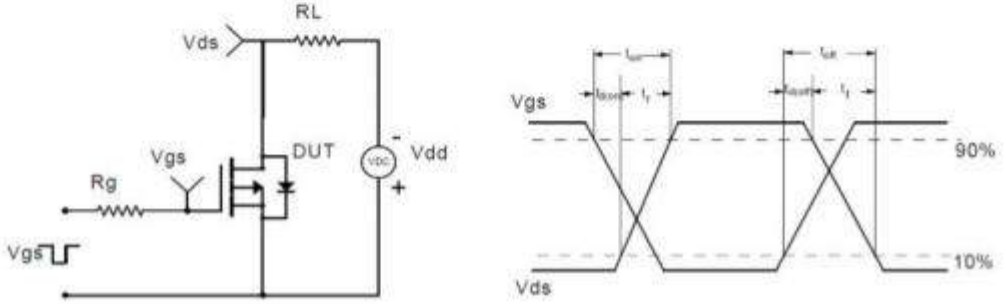
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-100	-	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS} =-100V, V_{GS} = 0V	-	-	-50	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V,V_{DS} = 0V	-	-	±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	-1.2	-1.7	-2.5	V
Drain-source on-resistance	$R_{DS(on)}$	V_{GS} =-10V, I_D =-10A	-	78	95	mΩ
		V_{GS} =-4.5V, I_D =-8A	-	86	110	
Dynamic characteristics						
Input Capacitance	C_{iss}	V_{DS} =-20V, V_{GS} =0V, f =1MHz	-	3029	-	pF
Output Capacitance	C_{oss}		-	129	-	
Reverse Transfer Capacitance	C_{rss}		-	76	-	
Switching characteristics						
Turn-on delay time	$t_{d(on)}$	V_{DD}=-50V, I_D=-10A, V_{GS}=-10V, R_G=3.3Ω	-	12	-	ns
Turn-on rise time	t_r		-	27.4	-	
Turn-off delay time	$t_{d(off)}$		-	79	-	
Turn-off fall time	t_f		-	53.6	-	
Total Gate Charge	Qg	VDS=-50V, ID=-20A, VGS=-10V	-	44.5	-	nC
Gate-Source Charge	Qgs		-	9	-	
Gate-Drain Charge	Qgd		-	6	-	
Source-Drain Diode characteristics						
Diode Forward voltage	V_{DS}	V_{GS} =0V, I_S=1A	-	-	-1.2	V
Diode Forward current	I_S		-	-	-13	A

Test Circuit

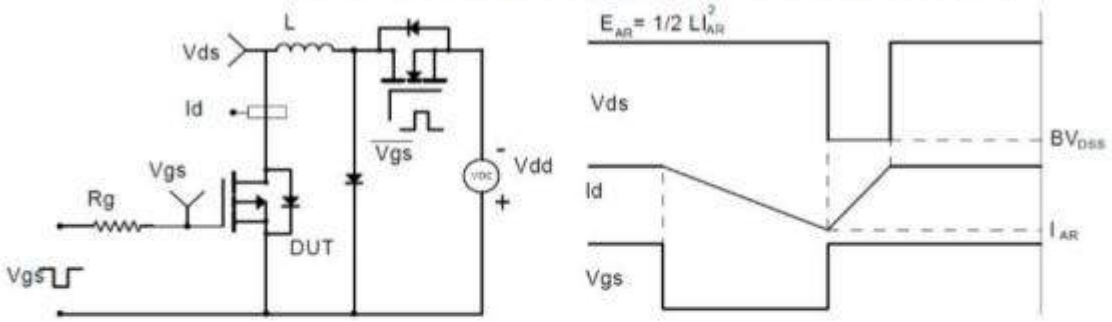
Gate Charge Test Circuit & Waveform



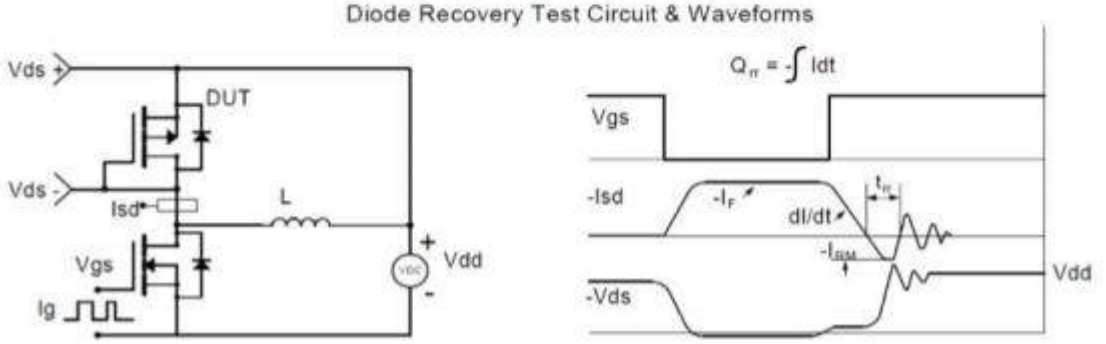
Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms



RATING AND CHARACTERISTICS CURVES (RM13P100D3)

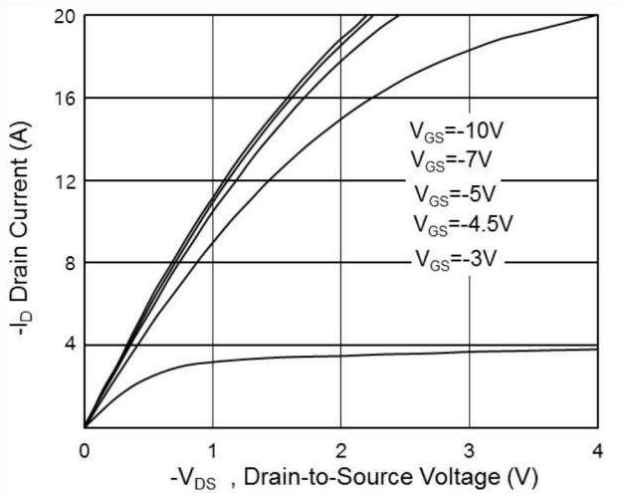


Fig.1 Typical Output Characteristics

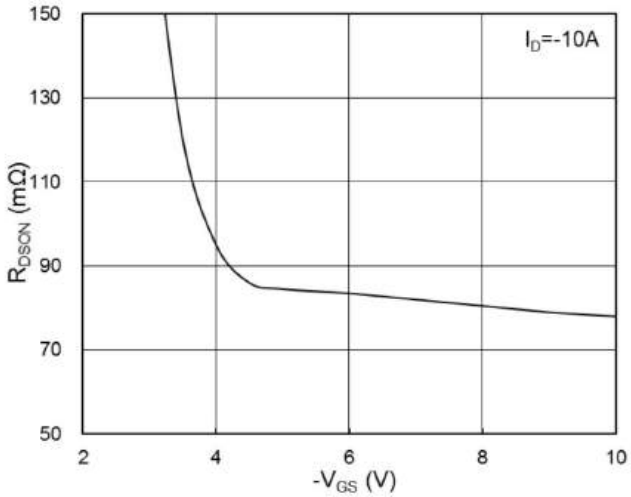


Fig.2 On-Resistance vs. G-S Voltage

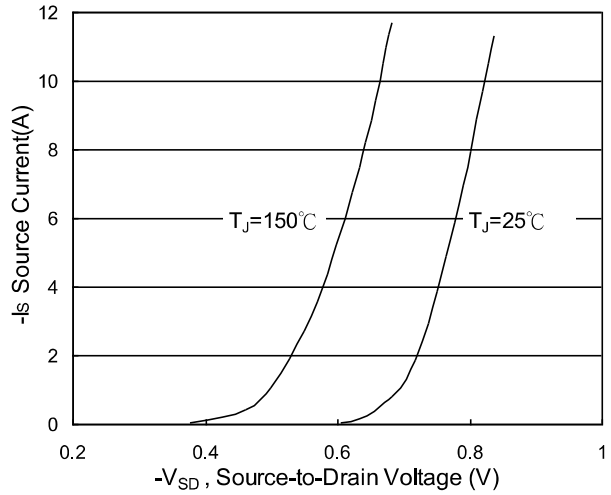


Fig.3 Typical S-D Diode Forward Voltage

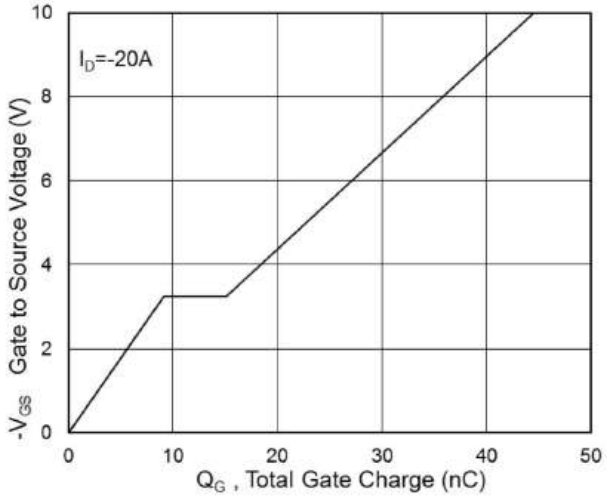


Fig.4 Gate-Charge Characteristics

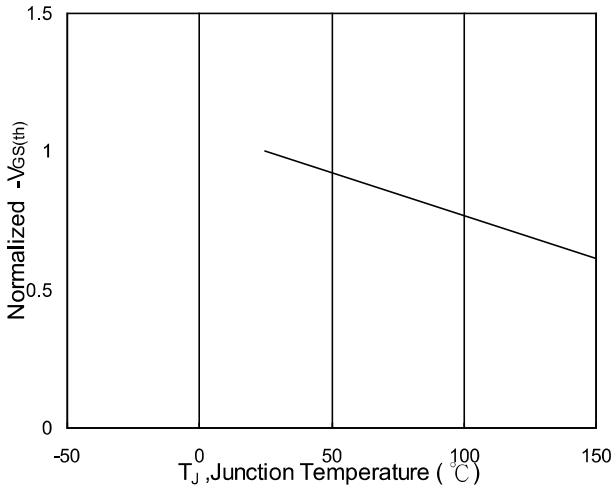


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

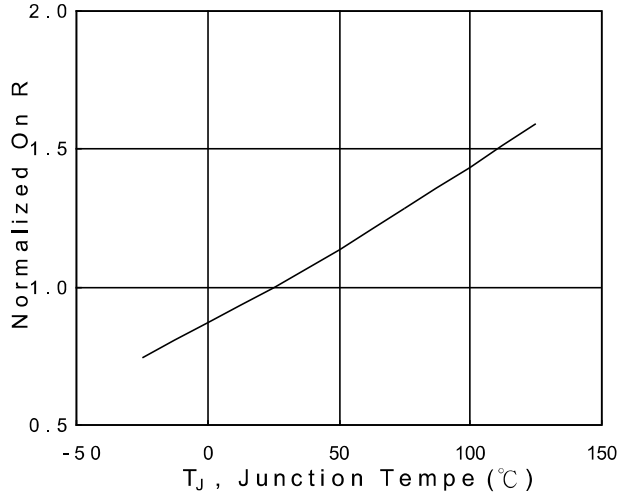


Fig.6 Normalized R_{DSON} vs. T_J

RATING AND CHARACTERISTICS CURVES (RM13P100D3)

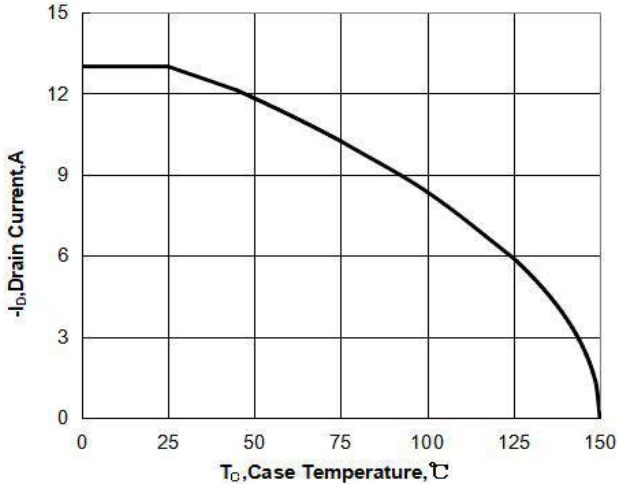


Fig.7 Current Derating

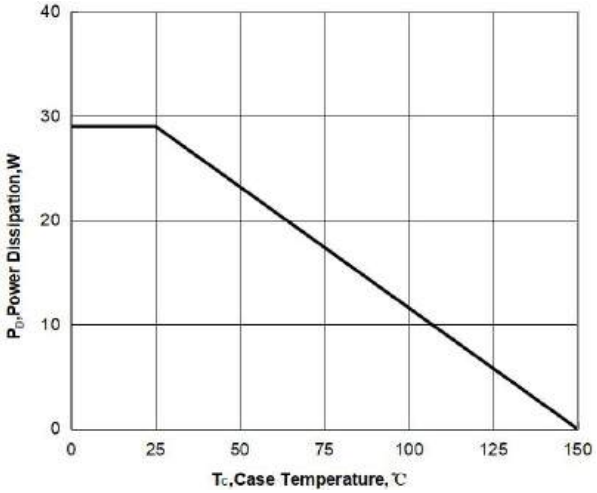


Fig.8 Power Derating

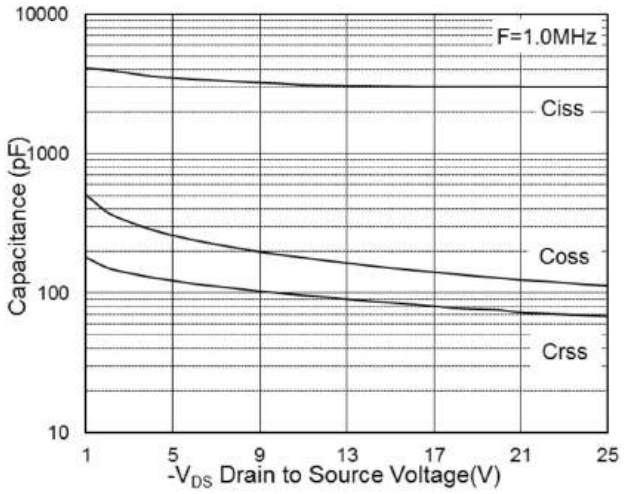


Fig.9 Capacitance

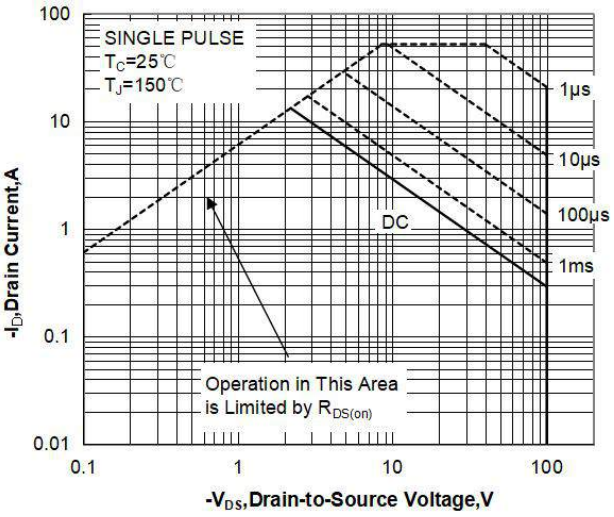


Fig.10 Safe Operating Area

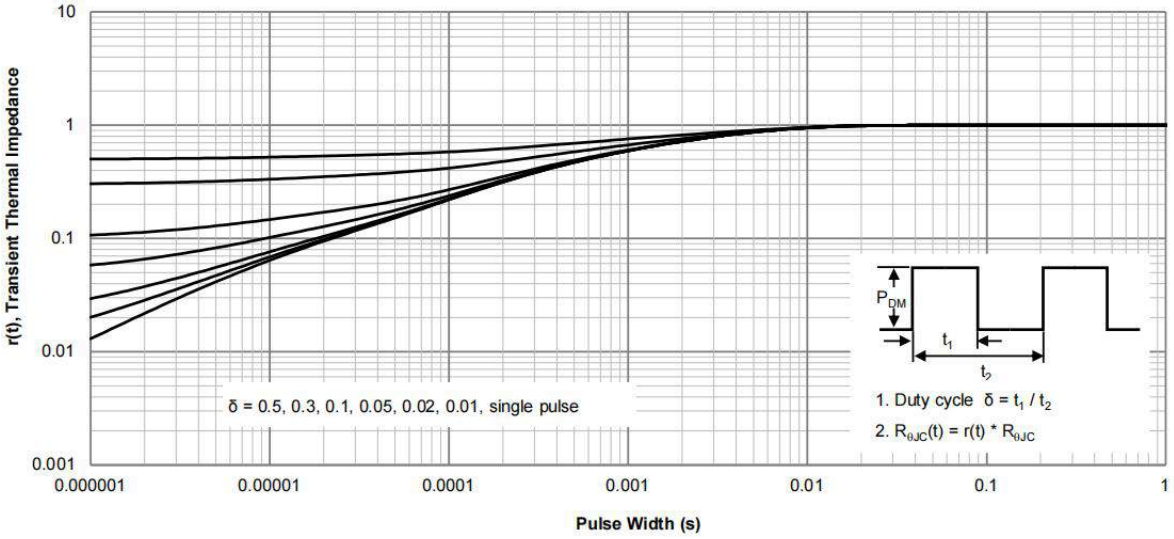
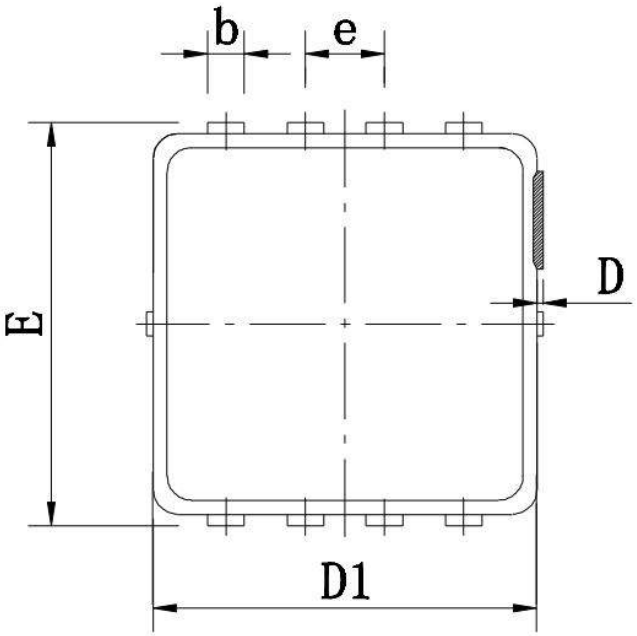
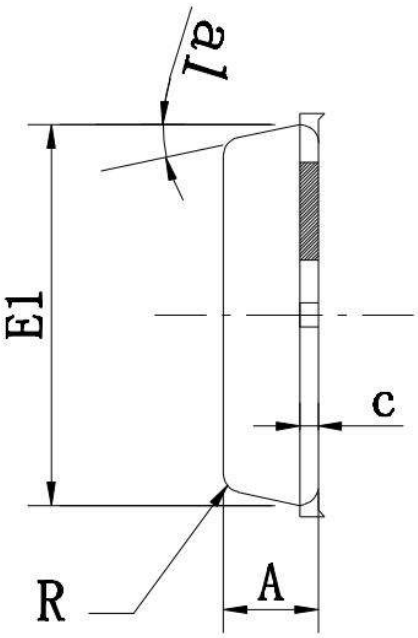


Fig.11 Normalized Maximum Transient Thermal Impedance

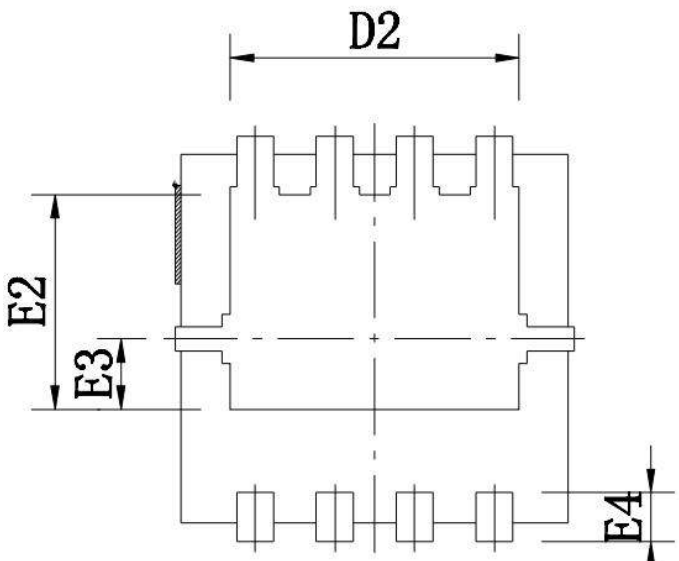
DFN3X3 Package Information



TOP VIEW



SIDE VIEW

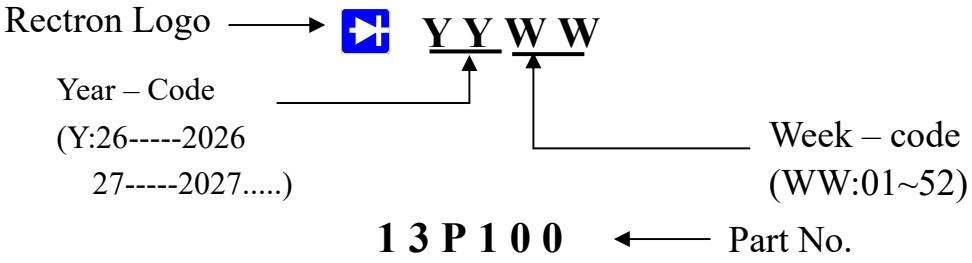


BOTTOM VIEW

Dimensions In Millimeterer			
Symbol	MIN	TYP	MAX
A	0.75	0.78	0.81
b	0.297	0.30	0.35
c	--	0.152	--
D0	0.00	0.05	0.10
D1	3.12	3.15	3.18
D2	--	2.35	--
E	3.20	3.30	3.40
E1	3.09	3.12	3.15
E2	--	1.75	--
E3	--	0.575	--
E4	--	0.40	--
R	--	0.15	--
e	0.65BSC		
a1°	—	12°	—

RECTRON

Marking on the body



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