

Absolute Maximum Ratings

Unless otherwise specified, $T_A = 25\text{ }^{\circ}\text{C}$.

Parameter	Symbol	Conditions	Rating	Unit
Nonrepetitive Peak Reverse Voltage ⁽¹⁾	V_{RSM}		400	V
Repetitive Peak Reverse Voltage ⁽¹⁾	V_{RM}		400	V
Average Forward Current	$I_{F(AV)}$	See Figure 1 and Figure 2	20	A
Surge Forward Current ⁽¹⁾	I_{FSM}	Half cycle sine wave, positive side, 10 ms, 1 shot	100	A
I^2t Limiting Value ⁽¹⁾	I^2t	$1\text{ ms} \leq t \leq 10\text{ ms}$	50	A^2s
Junction Temperature	T_J		-40 to 150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}		-40 to 150	$^{\circ}\text{C}$

Electrical Characteristics

Unless otherwise specified, $T_A = 25\text{ }^{\circ}\text{C}$.

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Forward Voltage Drop ⁽¹⁾	V_F	$T_J = 25\text{ }^{\circ}\text{C}$, $I_F = 10\text{ A}$	—	—	1.3	V
		$T_J = 100\text{ }^{\circ}\text{C}$, $I_F = 10\text{ A}$	—	0.94	—	V
Reverse Leakage Current ⁽¹⁾	I_R	$V_R = V_{RM}$	—	—	50	μA
Reverse Leakage Current under High Temperature ⁽¹⁾	$H \cdot I_R$	$V_R = V_{RM}$, $T_J = 150\text{ }^{\circ}\text{C}$	—	—	400	μA
Reverse Recovery Time ⁽¹⁾	t_{rr1}	$I_F = I_{RP} = 500\text{ mA}$, 90% recovery point, $T_J = 25\text{ }^{\circ}\text{C}$	—	—	50	ns
	t_{rr2}	$I_F = 500\text{ mA}$, $I_{RP} = 1000\text{ mA}$, 75% recovery point, $T_J = 25\text{ }^{\circ}\text{C}$	—	—	35	ns
Thermal Resistance ⁽²⁾	$R_{th(J-C)}$		—	—	2.0	$^{\circ}\text{C/W}$

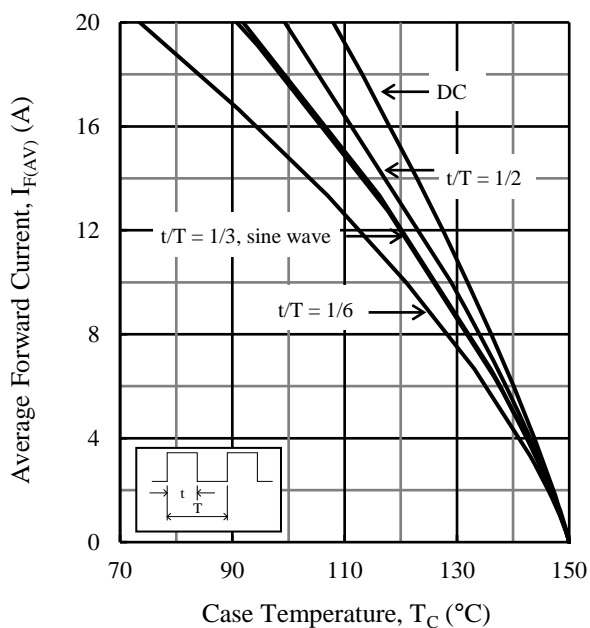
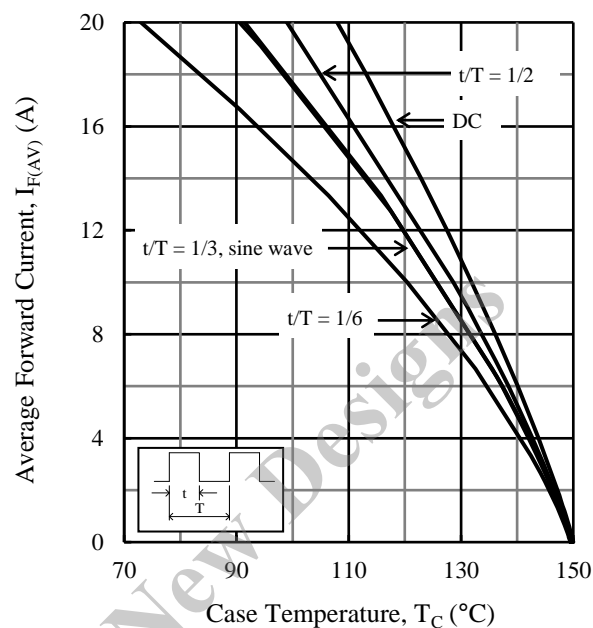
Mechanical Characteristics

Parameter	Conditions	Min.	Typ.	Max.	Unit
Heatsink Mounting Screw Torque		0.686	—	0.882	$\text{N}\cdot\text{m}$
Package Weight		—	6.5	—	g

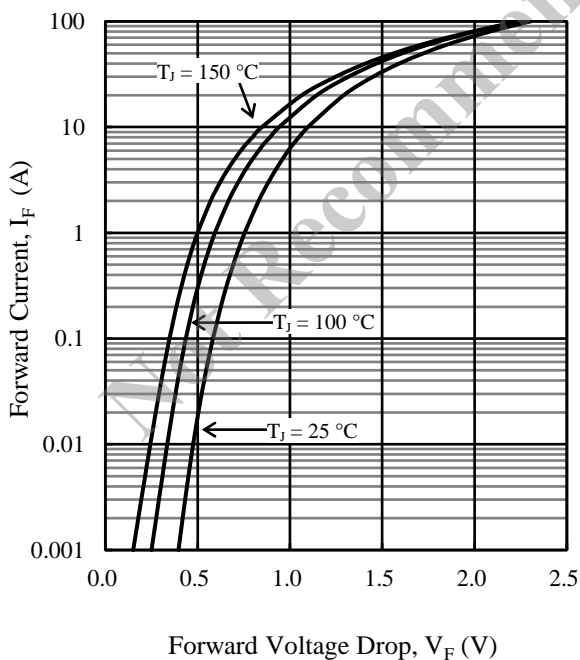
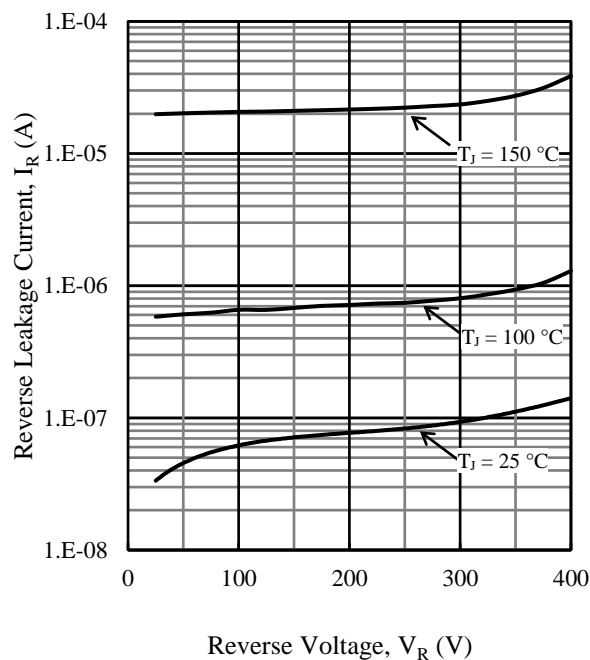
⁽¹⁾ Specifies a value per chip; the FML-4204S consists of two chips.

⁽²⁾ Refers to thermal resistance between junction and the case. The case temperature is measured at the backside near the screw hole.

Derating Curves

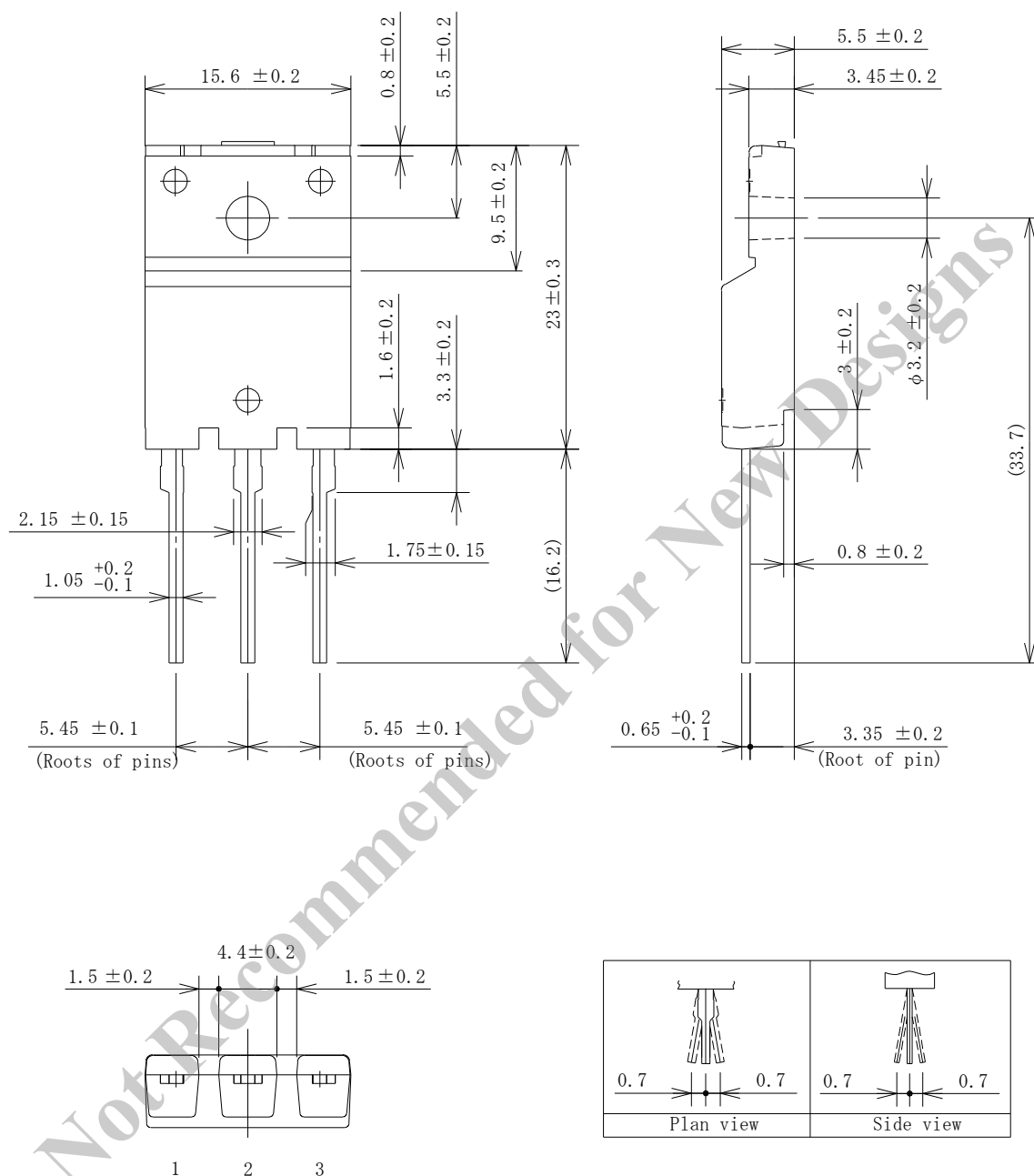
Figure 1. $I_{F(AV)}$ vs. T_C ($T_J = 150\text{ }^{\circ}\text{C}$, $V_R = 0\text{ V}$)Figure 2. $I_{F(AV)}$ vs. T_C ($T_J = 150\text{ }^{\circ}\text{C}$, $V_R = 400\text{ V}$)

Characteristic Curves

Figure 3. Typical Characteristics: I_F vs. V_F Figure 4. Typical Characteristics: I_R vs. V_R

Physical Dimensions

• TO3PF-3L



NOTES:

- Dimensions in millimeters
- Maximum gate burr height is 0.3 mm.
- Bare lead frame: Pb-free (RoHS compliant)
- When soldering the products, it is required to minimize the working time within the following limits:
 Flow: 260 ± 5 °C / 10 ± 1 s, 2 times
 Soldering Iron: 380 ± 10 °C / 3.5 ± 0.5 s, 1 time
 Soldering should be at a distance of at least 1.5 mm from the body of the product.

Marking Diagram

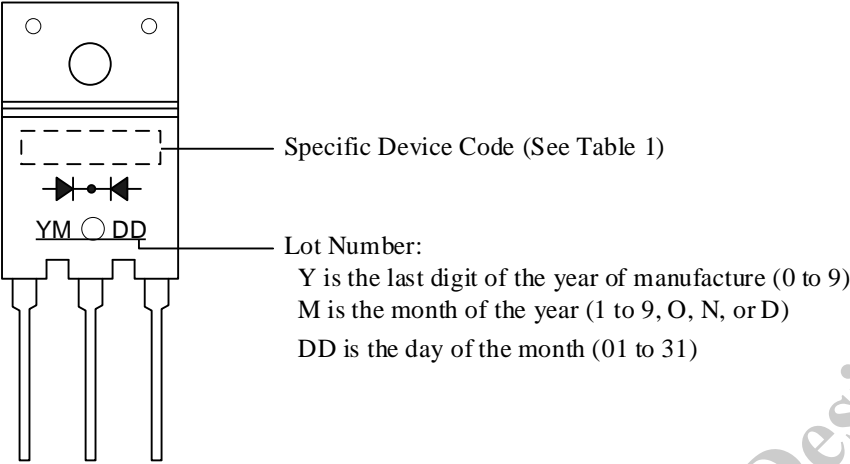


Table 1. Specific Device Code

Specific Device Code	Part Number
L4204S	FML-4204S

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