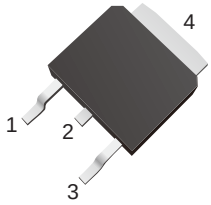
LTM45P40

P-Channel Mosfet

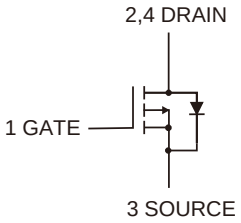
Features

- Advanced trench process technology
- Reliable and rugged
- Low On-Resistance
- Lead free in comply with EU RoHS 2011/65/EU directives



Ordering Information

Part Number	Marking	Shipping	Reel
LTM45P40-TR2K5	45P40	2500PCS Tape&Reel	13 inchs



Maximum Ratings（Ta = 25℃）

Symbol	Parameter	Value	Unit
V_{DS}	Drain-Source Voltage	-40	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Continuous Drain Current[*1]	-45	A
I_{DM}	Pulsed Drain Current Tj=25℃[*2]	-180	A
E_{AS}	Single Pulsed Avalanche Energy[*3]	130	mJ
P_D	Power Dissipation[*1]	73.5	W
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient[*6]	62.5	℃/W
$R_{\theta JC}$	Thermal Resistance from Junction to Case[*6]	1.7	℃/W
T_J, T_{STG}	Operating and Storage Temperature Range	-55 ~+150	℃

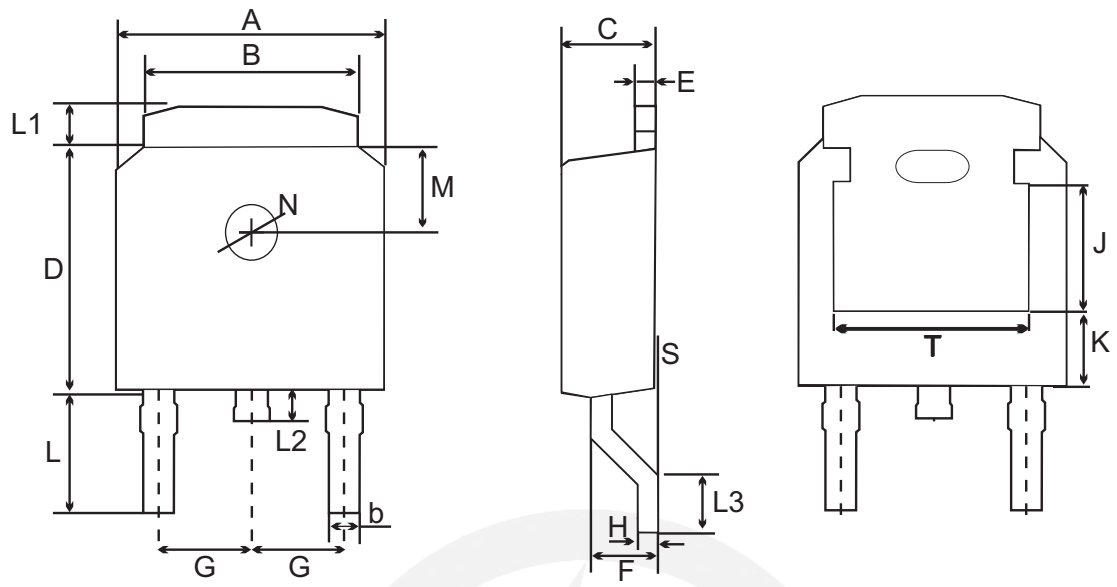
Electrical Characteristics（Ta = 25℃）

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Off characteristics						
$V_{(BR)DSS}$	Drain-source breakdown voltage	V_{GS} = 0V, I_D =-250μA	-40			V
I_{DSS}	Zero gate voltage drain current	V_{DS} =-40V, V_{GS} =0V			-1	μA
I_{GSS}	Gate-body leakage current	V_{DS} =0V, V_{GS} =±20V			±100	nA
V_{SD}	Drain-source diode forward voltage*4	V_{GS} = 0V, I_S =-20A			-1.2	V
gfs	Forward Transconductance	V_{DS}=-10V, I_D =-10A		13		S
On characteristics *4						
$V_{GS(th)}$	Gate-threshold voltage	V_{DS} =V_{GS}, I_D =-250μA	-1.0	-1.6	-2.5	V
$R_{DS(on)}$	Static drain-source on-resistance	V_{GS} =-10V, I_D =-20A V_{GS} =-4.5V, I_D =-10A		12 16	15 22	mΩ
Dynamic characteristics *4*5						
C_{iss}	Input capacitance	V_{DS} =-25V,V_{GS} =0V, f =1MHz		2757		pF
C_{oss}	Output capacitance			240		
C_{rss}	Reverse transfer capacitance			137		
Switching characteristics *4*5						
Qg	Total gate charge	V_{DS} =-32V, V_{GS} =-4.5V, I_D =-10A		22.2		nC
Qgs	Gate-source charge			8.2		
Qgd	Gate-drain charge			8.8		
td(on)	Turn-on delay time	V_{DS}=-20V,V_{GS}=-10V, R_G=6Ω, ID =-1A,		23		ns
tr	Turn-on rise time			10		
td(off)	Turn-off delay time			135		
tf	Turn-off fall time			46		

Notes :

*1.T_C=25℃ Limited only by maximum temperature allowed.
*2. Pulse Test : Pulse Width≤300μs, duty cycle ≤2%.
*3. EAS condition: V_{DD}=-25V,V_{GS}=-10V, L=0.1mH, L_{AS}=-51A Starting T_J = 25°℃.
*4. Pulse Test : Pulse Width≤300μs, duty cycle ≤2%.
*5. Guaranteed by design, not subject to production.
*6. The value of $R_{\theta JA}$ is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with Ta=25℃.

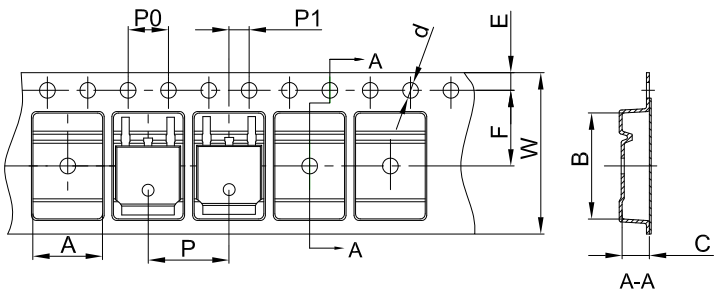
TO-252 Package Outline



UNIT		A	B	b	C	D	E	F	G	H	L	L1	L2	L3	S	M	N	J	K	T
mm	max	6.7	5.5	0.8	2.5	6.3	0.6	1.8	2.29 TYPICAL	0.55	3.1	1.2	1.0	1.75	0.23	1.8 TYPICAL	1.3 TYPICAL	3.16 ref.	1.80 ref.	4.83 ref.
	typ	6.6	5.3	0.7	2.3	6.1	0.5	1.5		0.50	2.8	1.0	0.8	1.30	0.15					
	min	6.3	5.1	0.3	2.1	5.9	0.4	1.3		0.45	2.7	0.8	0.6	1.00	0.0					

Carrier Tape Dimensions

Unit：mm

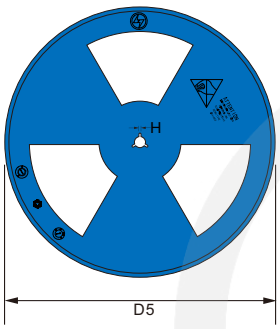


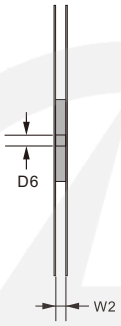
Symbol	Spec	Symbol	Spec
A	6.90	F	7.50
B	10.50	P0	4.00
C	2.70	P	8.00
d	Φ1.55	P1	2.00
E	1.75	W	16.00

Reel Dimensions

Unit：mm

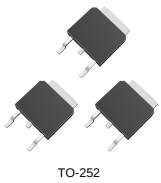
13” Reel



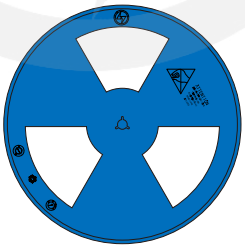


D5	Φ330.0±2.0
D6	Φ13.5±0.5
H	2.5±1.0
W2	12±2.0
Quantity: 2500PCS	

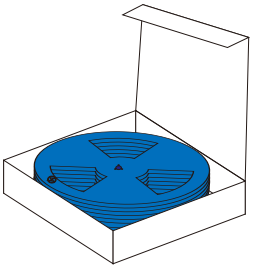
Packaging



2500PCS/Reel



5Reel/Inner Box
12.5KPCS/Inner Box



Dim(Unit:mm)
340mm*340mm*85mm

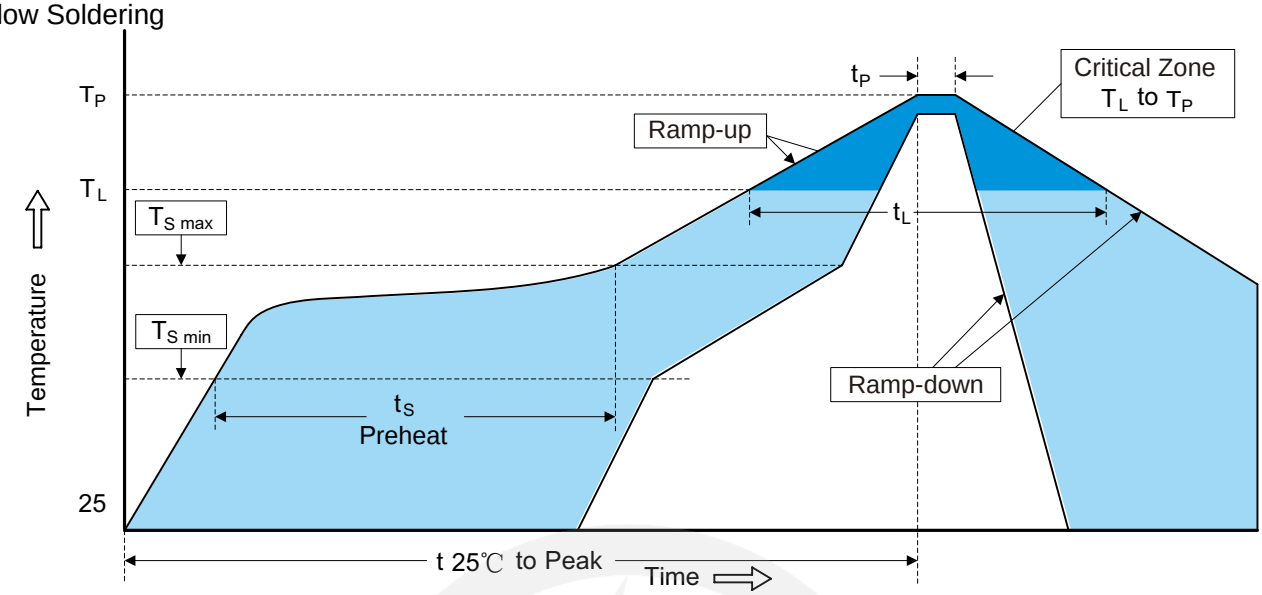
4 Boxs per carton
50KPCS per carton

Dim(Unit:mm)
360mm*360mm*355mm

13 inchs Reel

Recommended Soldering Conditions

Reflow Soldering



Recommended Conditions

Profile Feature	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	3℃/second max.
Preheat -Temperature Min ($T_{S\ min}$) -Temperature Max ($T_{S\ max}$) -Time (min to max) (t_S)	 150℃ 200℃ 60-180 seconds
$T_{S\ max}$ to T_L -Ramp-up Rate	 3℃/second max.
Time maintained above: -Temperature (T_L) -Time (t_L)	 217℃ 60-150 seconds
Peak Temperature (T_P)	260℃
Time within 5℃ of actual Peak Temperature (t_P)	20-40 seconds
Ramp-down Rate	6℃/second max.
Time 25℃ to Peak Temperature	8 minutes max.

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Version Update Information

Series NO.	Enactment/Revision Date	Effective Date	Version	Revision content	Revision Reason	Revision Person	Note
01	2024.9.14	2024.9.14	3.0	New File	/	Ding	
02	2025.06.11	2025.06.11	3.1	Update packaging information	/	Ding	