JIANGSU CHANGJING ELECTRONICS TECHNOLOGY CO., LTD.

TO-252-2L Plastic-Encapsulate Diode

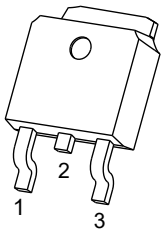
MURD10H40CTB HYPERFAST RECTIFIER,FRED

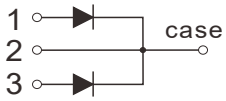
MAIN CHARACTERISTICS

I_O	10(5×2)A
V_{RRM}	400V
T_{rr}	18.5ns
T_j	175℃
$V_{F(typ)}$	1.0V(@T_j=150℃)

TO-252-2L

1. ANODE
2. CATHODE
3. ANODE





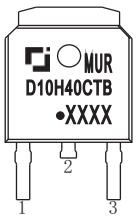
FEATURES

- Ultrafast Recovery Times and Low Recovery Loss
- Low Forward Voltage
- Low Reverse Leakage Current

APPLICATIONS

Specifically designed to improve efficiency of PFC and output rectification stages of EV / HEV battery charging stations, booster stage of solar inverters and UPS applications, these devices are perfectly matched to operate with MOSFETs or high speed IGBTs.

MARKING



MURD10H40CTB = Device code
Solid dot = Green molding compound device
if none, the normal device
XXXX = Code

MAXIMUM RATINGS (T_C=25℃unless otherwise noted)

Symbol	Parameter	MURD10H40CTB	Unit
V_{RRM}	Peak Repetitive Reverse Voltage	400	V
V_R	DC Blocking Voltage		
$I_{F(AV)}$	Average rectified output current@ Per leg(T_C=160℃)	5	A
	Average rectified output current@ Total device(T_C=160℃)	10	
$I_{F(RMS)}$	RMS Forward Current(T_C=160℃)	7	A
I_{FSM}	Non-Repetitive Surge Forward Current (8.3ms)	88	A
P_D	Power dissipation	65	W
$R_{\Theta JC}$	Thermal Resistance From Junction to Case@ Per leg	2.3	℃/W
T_j	Operating Junction Temperature Range	-55 ~ +175	℃
T_{stg}	Storage Temperature Range	-55 ~ +175	℃

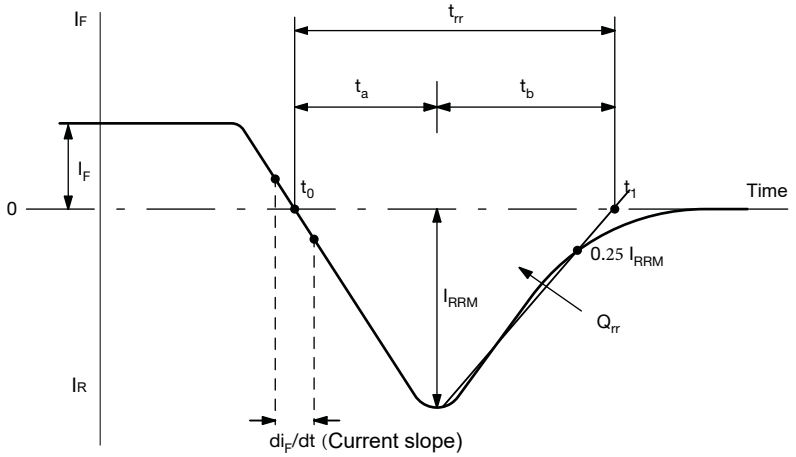
Typical Characteristics

ELECTRICAL CHARACTERISTICS (T_C=25℃ unless otherwise specified)

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
$V_{(BR)}$	Reverse Voltage	IR=100μA		400			V
I_R	Reverse Current	VR=400V	T_j=25℃			10	μA
			T_j=150℃			500	μA
V_F	Forward Voltage	IF=5A	T_j=25℃		1.15	1.4	V
			T_j=150℃		1.0		V
C_{tot}	Total Capacitance	VR=200V, f=1MHz			7		pF
trr	Reverse Recovery time	IF=0.5A, IR=1A,Irr=0.25A			24		ns
		IF=1A,VR=30V, di_F/dt =200A/us			18.5		ns

ELECTRICAL CHARACTERISTICS (T_C=25℃ unless otherwise specified)

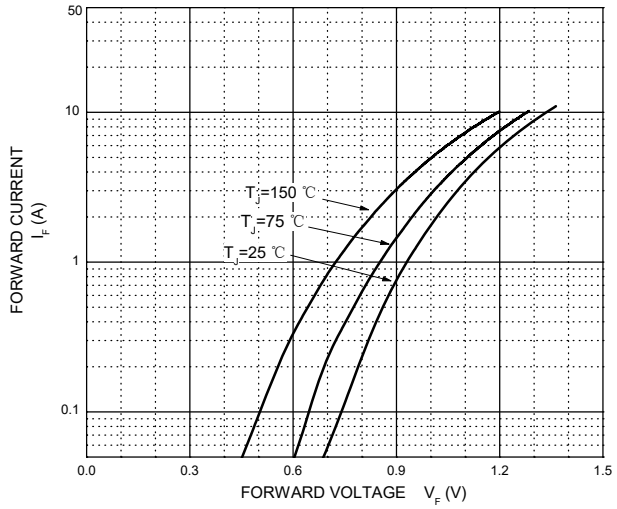
Symbol	Parameter	Test Comditions	Min.	Typ.	Max.	Unit
trr	Reverse Recovery Time	IF=5A, VR=200V, di_F/dt=200A/μs		42.7		ns
I_{RRM}	Max. Reverse Recovery Current			3		A
Qrr	Reverse Recovery Charge			75		nC
trr	Reverse Recovery Time	IF=5A, VR=200V, di_F/dt=200A/μs, T_j=125℃		62.5		ns
I_{RRM}	Max. Reverse Recovery Current			4.7		A
Qrr	Reverse Recovery Charge			164		nC
trr	Reverse Recovery Time	IF=5A, VR=200V, di_F/dt=500A/μs, T_j=125℃		46		ns
I_{RRM}	Max. Reverse Recovery Current			8.3		A
Qrr	Reverse Recovery Charge			224		nC



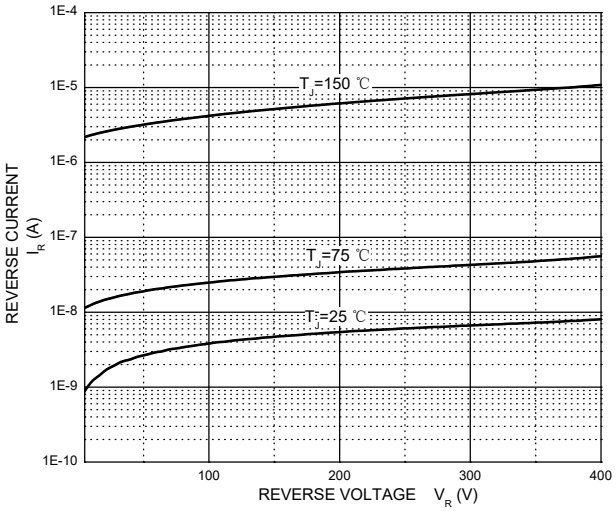
Reverse Recovery Waveform and Definitions

Typical Characteristics

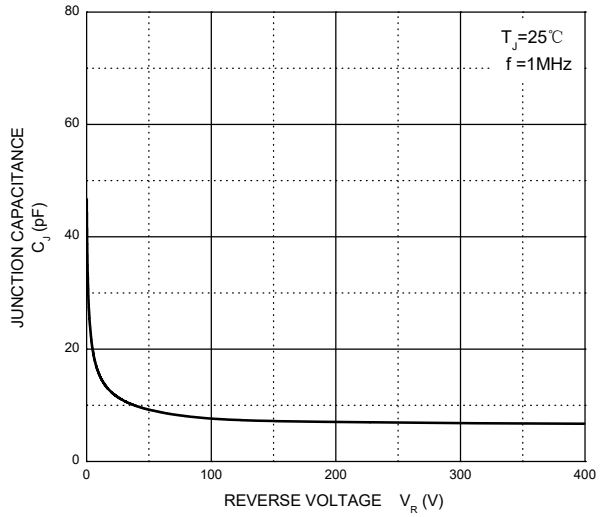
Forward Characteristics



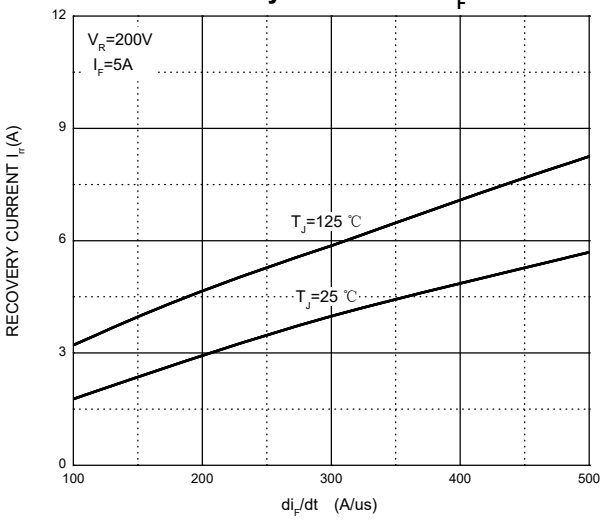
Reverse Characteristics



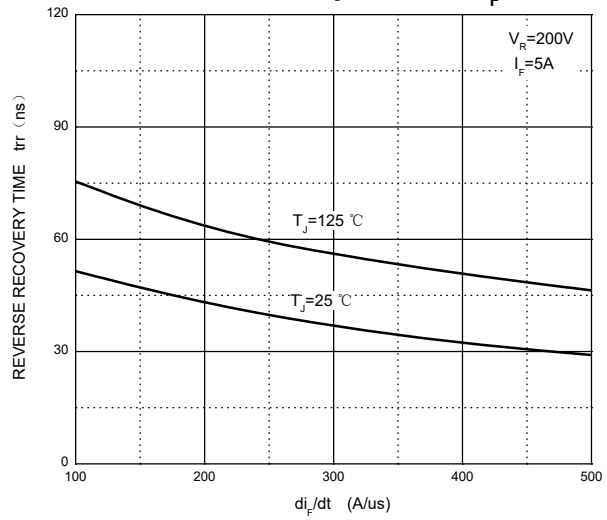
Capacitance Characteristics Per Diode



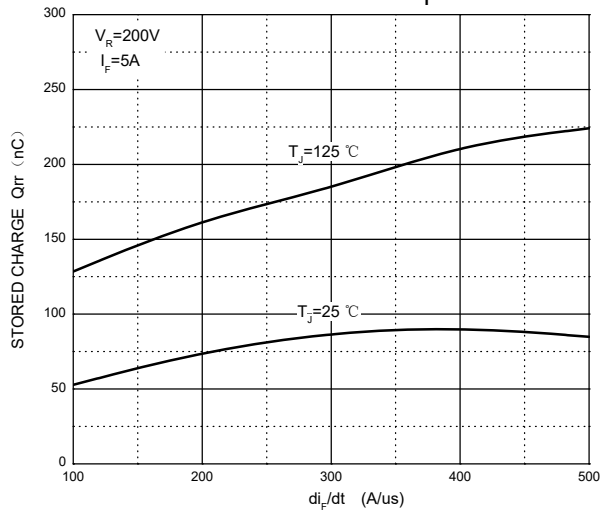
Recovery Current vs. di_F/dt



Reverse Recovery Time vs. di_F/dt

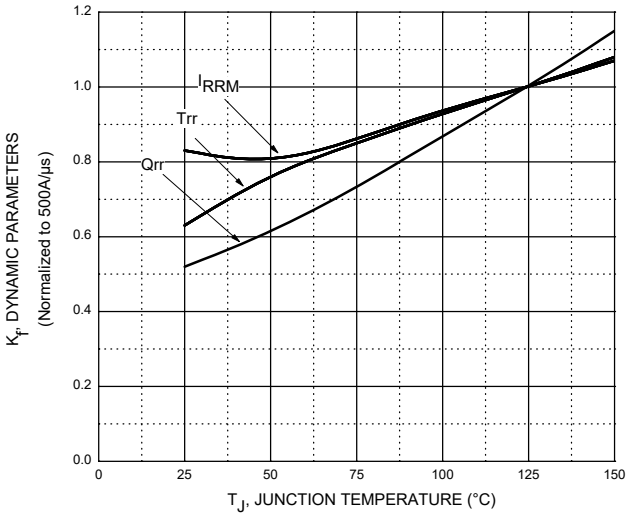


Stored Charge vs. di_F/dt

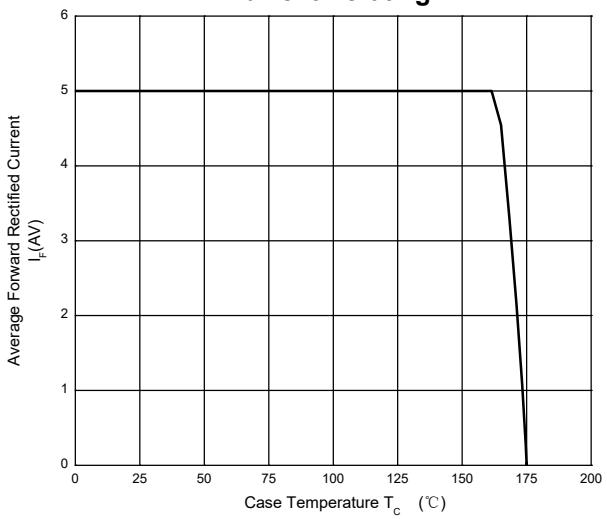


Typical Characteristics

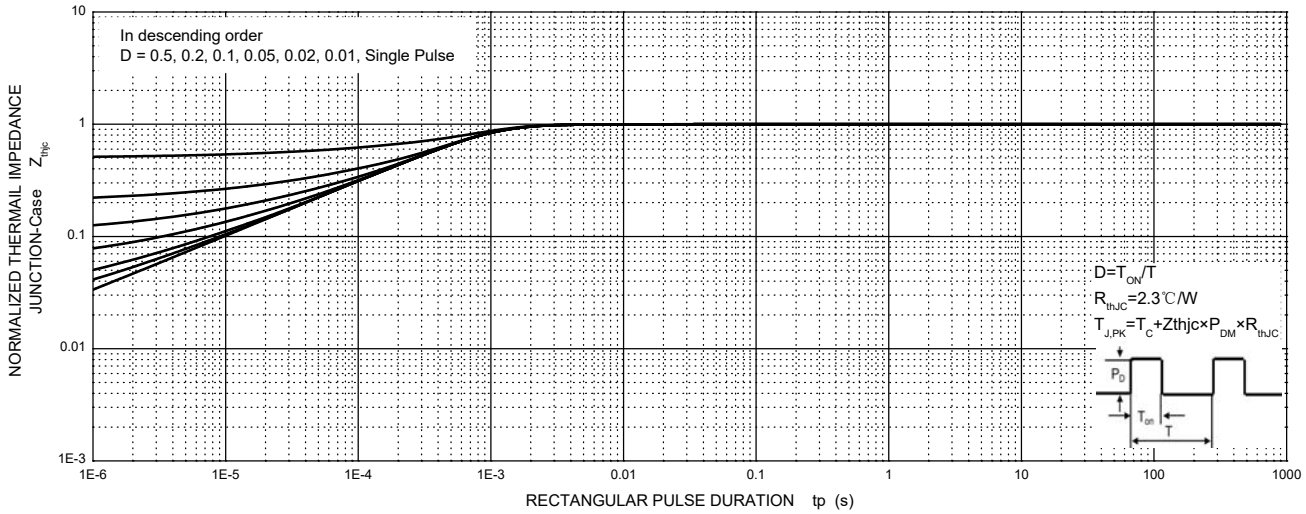
Dynamic Parameters vs. Junction Temperature



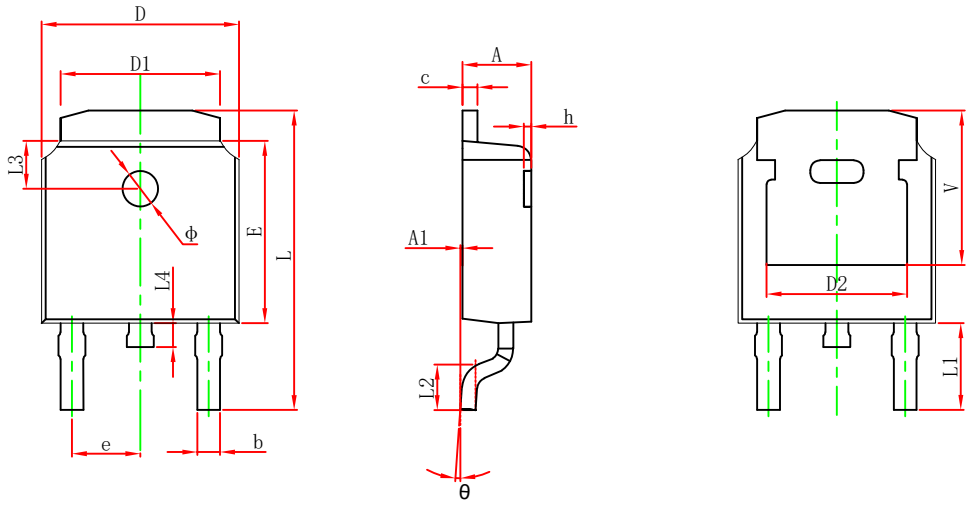
Current Derating



MURD10H40CTB Transient Thermal Impedance, Junction-Case

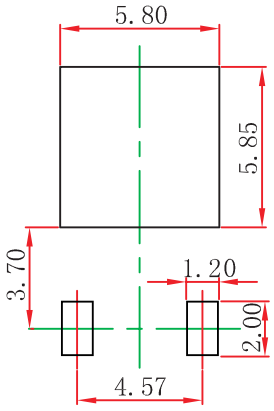


TO-252-2L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.635	0.770	0.025	0.030
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 REF.		0.190 REF.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.712	10.312	0.382	0.406
L1	2.900 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
L3	1.600 REF.		0.063 REF.	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.250 REF.		0.207 REF.	

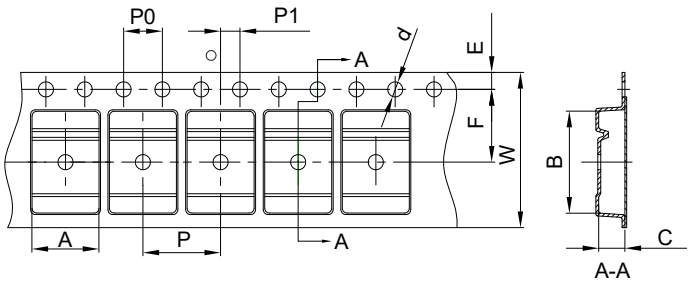
TO-252-2L Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.

TO-252-2L Tape and Reel

TO-252-2L Embossed Carrier Tabe

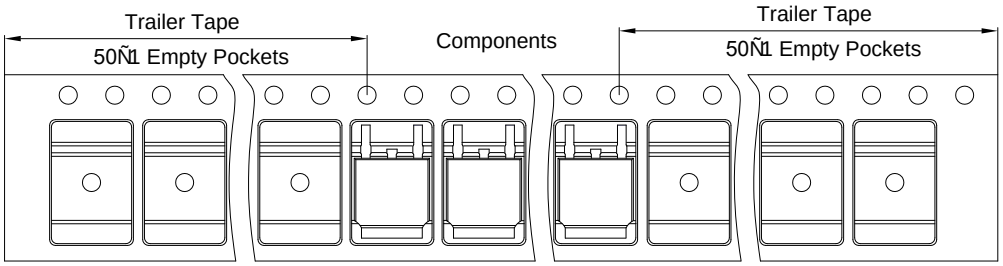


Packaging Description:

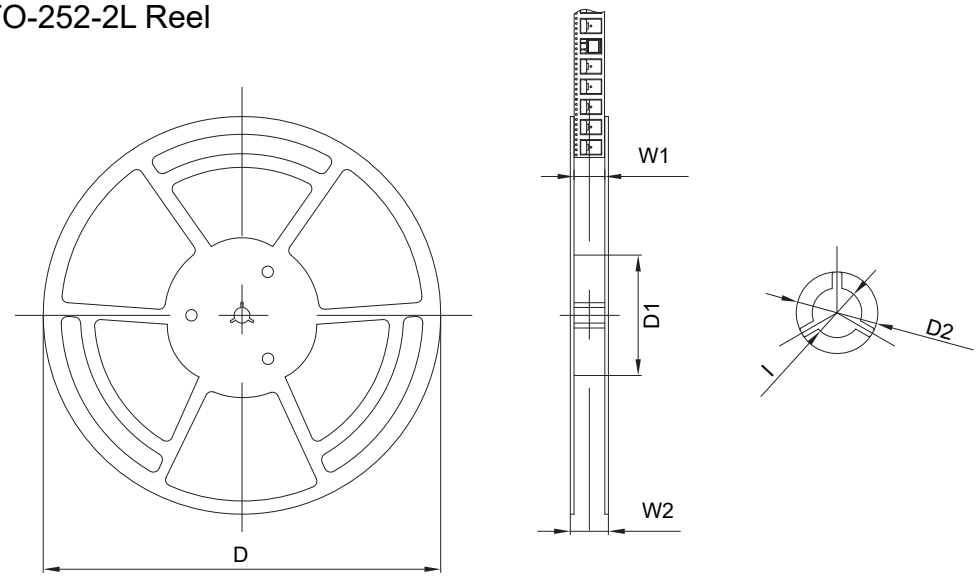
TO-252-2L parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Hear Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 2500 units per 13″ or 33.0 cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
TO-252	6.90	10.50	2.70	Φ1.55	1.75	7.50	4.00	8.00	2.00	16.00

TO-252-2L Tape Leader and Trailer



TO-252-2L Reel



Dimensions are in millimeter						
Reel	D	D1	D2	W1	W2	I
13" Dia	330.00	100.00	Φ21.00	16.40	21.40	Φ13.00

Reel	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)
2500 pcs	13 inch	5000 pcs	360×360×65	25000 pcs	378×358×382