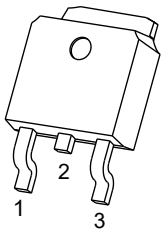
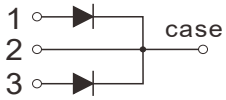
TO-252-2L Plastic-Encapsulate Diodes

HYPERFAST RECTIFIER,FRED

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

MAIN CHARACTERISTICS

I_O	10(5×2)A
V_{RRM}	200V
T_{rr}	13ns
T_j	175℃
$V_{F(typ)}$	0.7V(@T_j=150℃)

MAXIMUM RATINGS (T_C=25℃unless otherwise noted)

Symbol	Parameter	KMURD1020CT	Unit
V_{RRM}	Peak Repetitive Reverse Voltage	200	V
V_R	DC Blocking Voltage		
$I_{F(AV)}$	Average rectified output current@ Per leg(T_C=161℃)	5	A
	Average rectified output current@ Total device(T_C=161℃)	10	
$I_{F(RMS)}$	RMS Forward Current(T_C=161℃)	7	A
I_{FSM}	Non-Repetitive Surge Forward Current (8.3ms）	150	A
P_D	Power dissipation	38	W
$R_{\Theta JC}$	Thermal Resistance From Junction to Case@ Per leg	4.0	℃/W
T_j	Operating Junction Temperature Range	-55 ~ +175	℃
T_{stg}	Storage Temperature Range	-55 ~ +175	℃

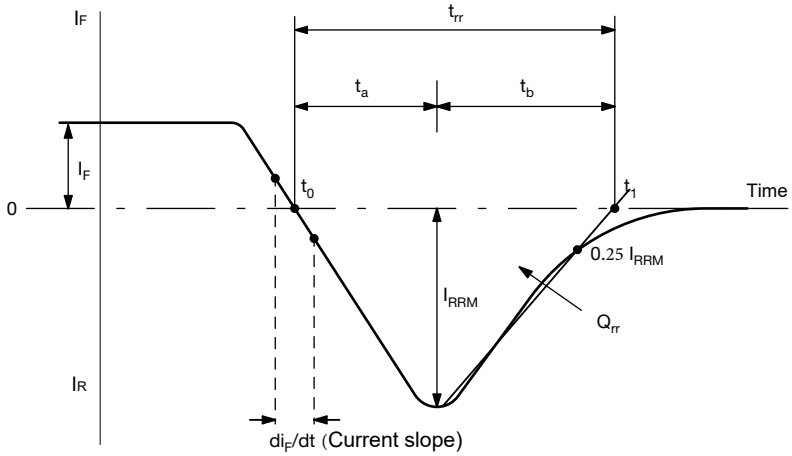
Typical Characteristics

ELECTRICAL CHARACTERISTICS (T_C=25℃ unless otherwise specified)

Symbol	Parameter	Test Conditions		Min.	Typ.	Max.	Unit
$V_{(BR)}$	Reverse Voltage	IR=100μA		200			V
I_R	Reverse Current	VR=200V	T_j=25℃			5	μA
			T_j=150℃			500	μA
V_F	Forward Voltage	IF=5A	T_j=25℃		0.90	0.95	V
			T_j=150℃		0.7		V
C_{tot}	Total Capacitance	VR=200V, f=1MHz			14.5		pF
trr	Reverse Recovery time	IF=0.5A, IR=1A,Irr=0.25A				35	ns
		IF=1A,VR=30V, di_F/dt =200A/us			13		ns

ELECTRICAL CHARACTERISTICS (T_C=25℃ unless otherwise specified)

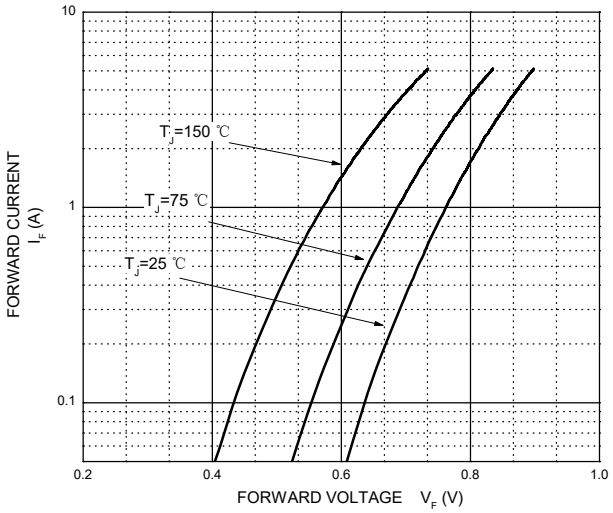
Symbol	Parameter	Test Comditions	Min.	Typ.	Max.	Unit
trr	Reverse Recovery Time	IF=10A, VR=100V, di_F/dt=200A/μs		16		ns
I_{RRM}	Max. Reverse Recovery Current			3.0		A
Qrr	Reverse Recovery Charge			27		nC
trr	Reverse Recovery Time	IF=10A, VR=100V, di_F/dt=200A/μs, T_j=125℃		28		ns
I_{RRM}	Max. Reverse Recovery Current			5.5		A
Qrr	Reverse Recovery Charge			80		nC
trr	Reverse Recovery Time	IF=10A, VR=100V, di_F/dt=500A/μs, T_j=125℃		24		ns
I_{RRM}	Max. Reverse Recovery Current			11		A
Qrr	Reverse Recovery Charge			145		nC



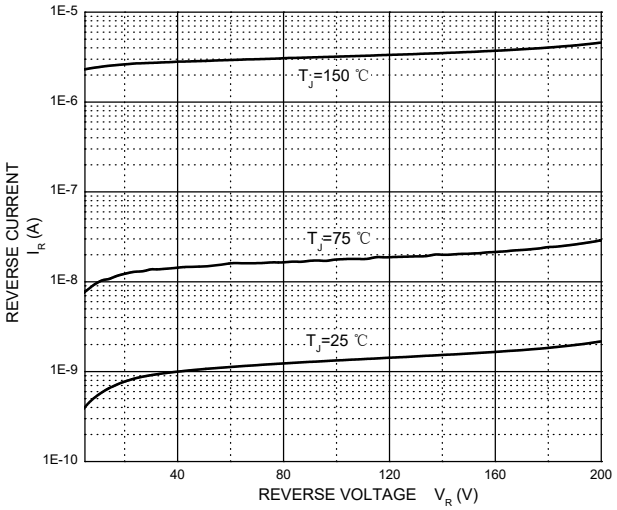
Reverse Recovery Waveform and Definitions

Typical Characteristics

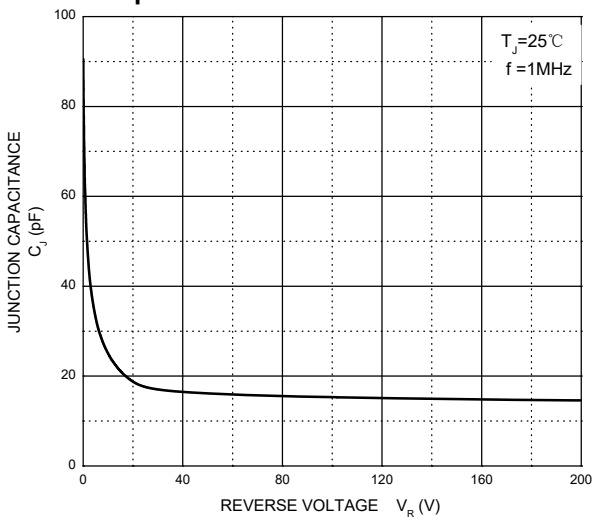
Forward Characteristics



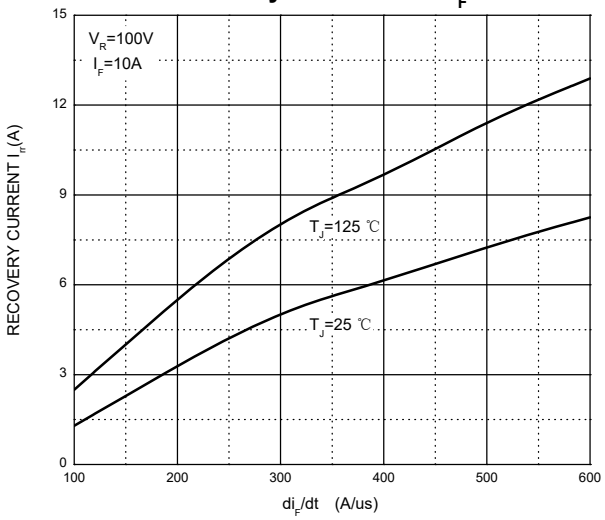
Reverse Characteristics



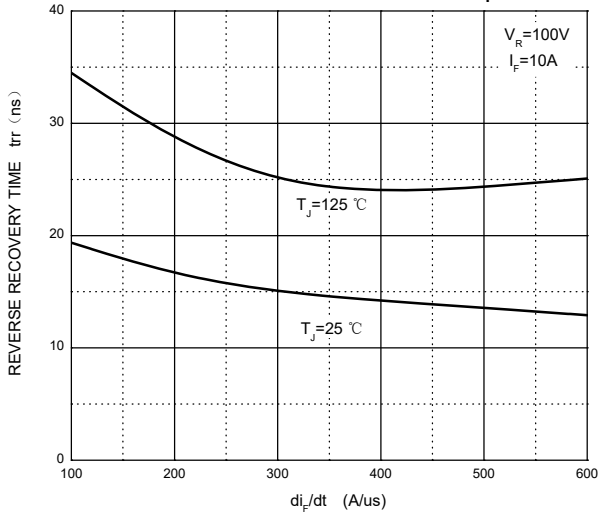
Capacitance Characteristics Per Diode



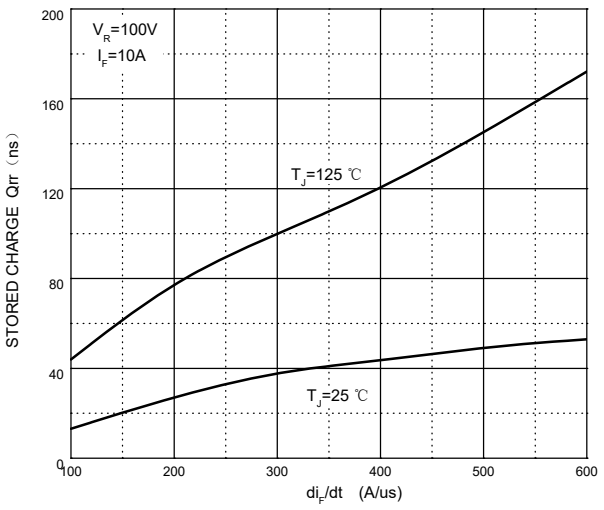
Recovery Current vs. di_F/dt



Reverse Recovery Time vs. di_F/dt

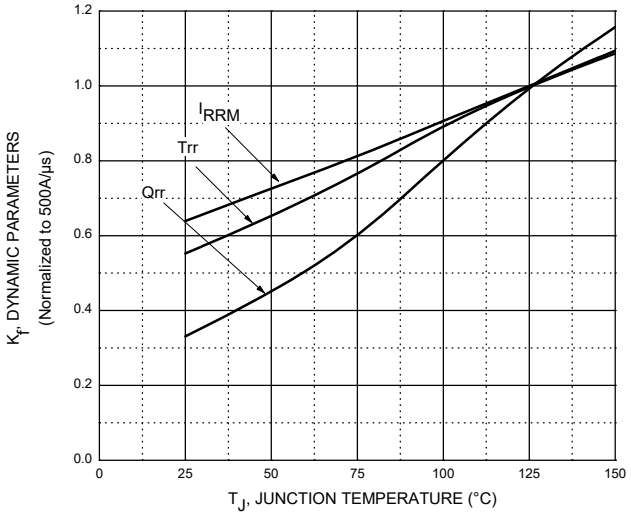


Stored Charge vs. di_F/dt

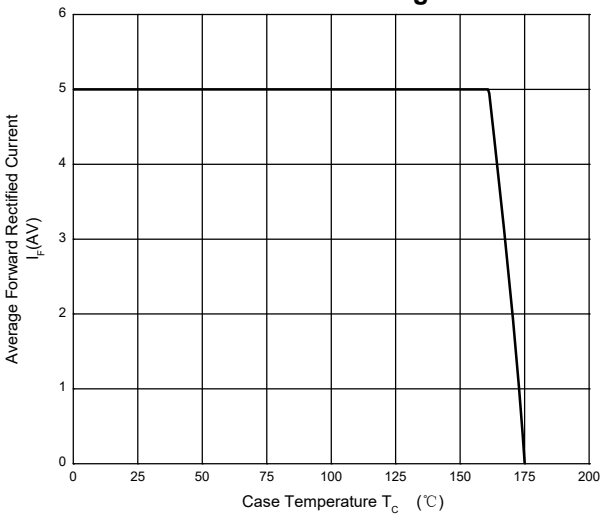


Typical Characteristics

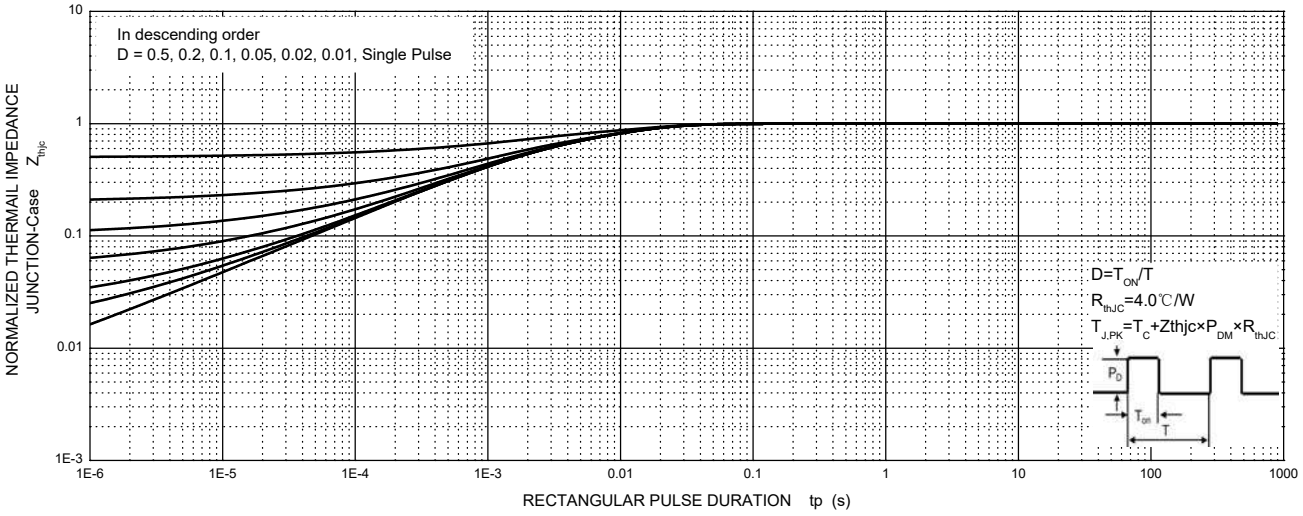
Dynamic Parameters vs. Junction Temperature



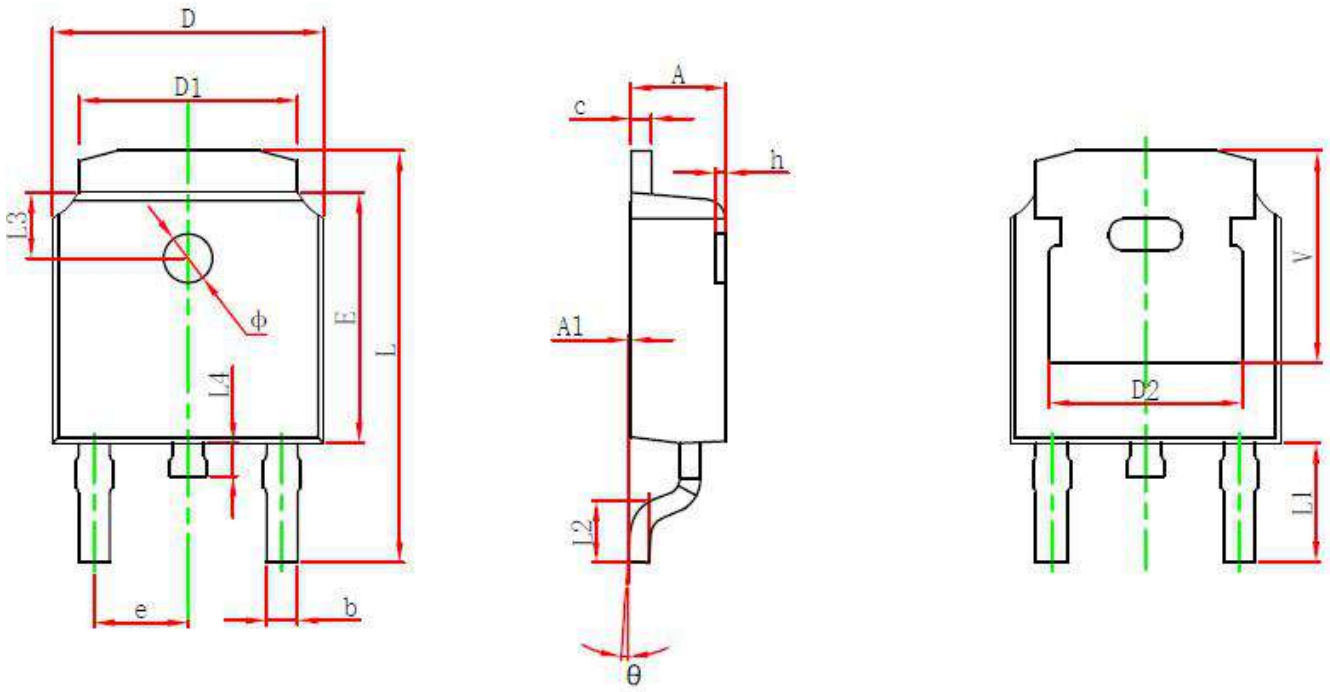
Current Derating



KMURD1020CT Transient Thermal Impedance, Junction-Case

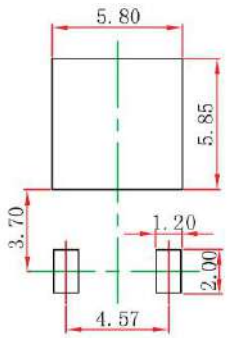


TO-252-2L PACKAGE OUTLINE DIMENSIONS



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

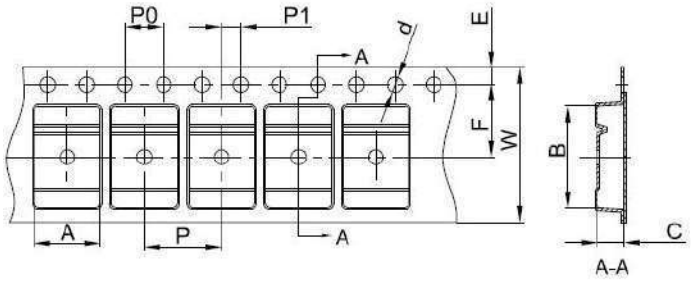


Note:

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

TO-252-2L TAPE AND REEL

TO-252 Embossed Carrier Tape

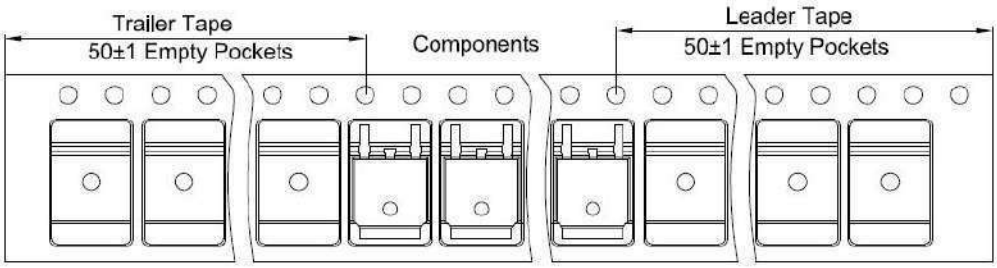


Packaging Description:

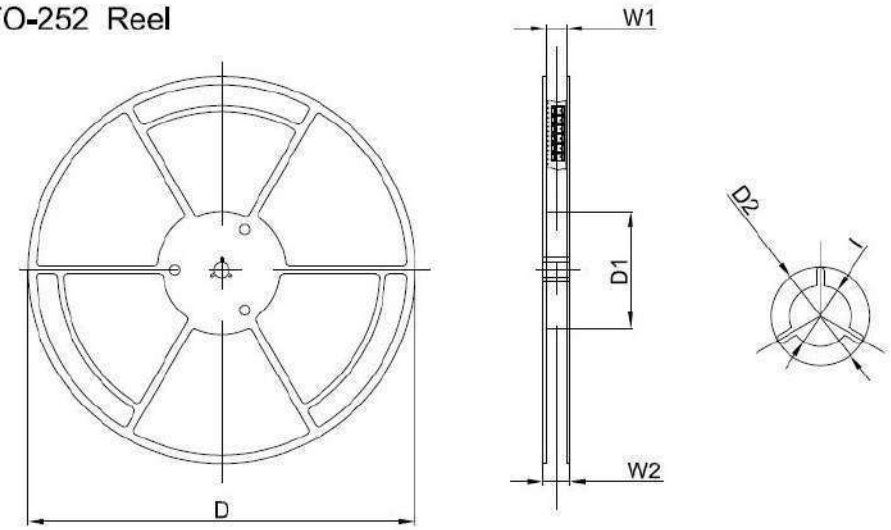
TO-252 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 25,00 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	Ø1,55	1,75	7,50	4,00	8,00	2,00	16,00

TO-252 Tape Leader and Trailer



TO-252 Reel



Dimensions are in millimeter						
Reel Option	D	D1	D2	W1	W2	I
13"Dia	330.00	100.00	Ø21.00	16.40	21.00	Ø13.00

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
2,500 pcs	13Inch	2,500 pcs	340×336×29	25,000 pcs	353×346×365	