TYN1025

KERSMI ELECTRONIC CO.,LTD. **1000V**

Description

This MOSFETS use advanced trench technology and design to provide excellent RDS(on) with low gate charge. It can be used in a wide variety of applications.

Features

BVDSS	ID
1000V	25A

1) Low gate charge.
2) Green device available.
3) Advanced high cell denity trench technology for ultra RDS(ON)
4) Excellent package for good heat dissipation.

TO-220

Absolute Maximum Ratings T_C=25℃,unless otherwise noted

Thermal Characteristics

Symbol	Parameter	Ratings	Units
$R_{\theta JC}$	Thermal Resistance ,Junction to Case1	1.0	° C/W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient1	45	

Package Marking and Ordering Information

Part NO.	Marking	Package
TYN1025	TYN1025	TO-220

Symbol	Parameter			Value	Unit
$I_{T(RMS)}$	RMS on-state current (180° conduction angle)		Tc = 100°C	25	A
$T_{(AV)}$	Average on-state current (180° conduction angle)		Tc = 100°C	16	A
I_{TSM}	Non repetitive surge peak on-state current	tp = 8.3 ms	Tj = 25°C	314	A
		tp = 10 ms		300	
I^2t	I^2t Value for fusing	tp = 10 ms	Tj = 25°C	450	A^2S
dI/dt	Critical rate of rise of on-state current I_G = 2 x I_{GT} , tr ≤ 100 ns	F = 60 Hz	Tj = 125°C	50	A/µs
I_{GM}	Peak gate current	tp = 20 µs	Tj = 125°C	4	A
$P_{G(AV)}$	Average gate power dissipation		Tj = 125°C	1	W
T_{stg} Tj	Storage junction temperature range Operating junction temperature range			- 40 to + 150 - 40 to + 125	°C
V_{RGM}	Maximum peak reverse gate voltage			5	V

ELECTRICAL CHARACTERISTICS (Tj = 25°C, unless otherwise specified)

Symbol	Test Conditions			Value	Unit
I_{GT}	V_D = 12 V R_L = 33 Ω		MIN.	4	mA
			MAX.	40	
V_{GT}			MAX.	1.3	V
V_{GD}	V_D = V_{DRM} R_L = 3.3 kΩ	Tj = 125°C	MIN.	0.2	V
I_H	I_T = 500 mA Gate open		MAX.	50	mA
I_L	I_G = 1.2 I_{GT}		MAX.	90	mA
dV/dt	V_D = 67 % V_{DRM} Gate open	Tj = 125°C	MIN.	1000	V/µs
V_{TM}	I_{TM} = 50 A tp = 380 µs	Tj = 25°C	MAX.	1.6	V
V_{t0}	Threshold voltage	Tj = 125°C	MAX.	0.77	V
R_d	Dynamic resistance	Tj = 125°C	MAX.	14	mΩ
I_{DRM} I_{RRM}	V_{DRM} = V_{RRM}	Tj = 25°C	MAX.	5	µA
		Tj = 125°C		4	mA

THERMAL RESISTANCES

Symbol	Parameter			Value	Unit
$R_{th(j-c)}$	Junction to case (DC)			1.0	°C/W
$R_{th(j-a)}$	Junction to ambient (DC)		TO-220AB	60	°C/W
		S = 1 cm^2	D^2PAK	45	

S = Copper surface under tab

PRODUCT SELECTOR

Part Number	Voltage (xxx)			Sensitivity	Package
	600 V	800 V	1000 V		
TN2540-xxxG	X	X	X	40 mA	D^2PAK
TYNx25	X	X	X	40 mA	TO-220AB

Notes:

1. The data tested by surface mounted on a 1 inch² FR-4 board 2OZ copper.
2. The data tested by pulse width≤300us,duty cycle≤2%
3. The EAS data shows Max.rating.The test condition is V_{DD}=25v,V_{GS}=10V,L=0.1mH,i_{AS}=17.8A
4. The power dissipation is limited by 150℃ junction temperature.

Typical Characteristics T_J=25℃ unless otherwise noted

Fig. 1: Maximum average power dissipation versus average on-state current.

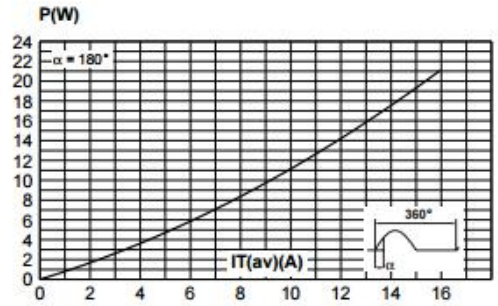


Fig. 2-1: Average and D.C. on-state current versus case temperature.

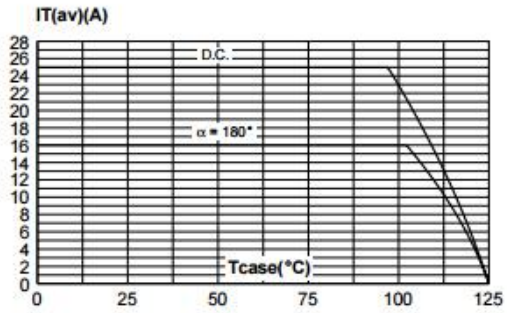


Fig. 2-2: Average and D.C. on-state current versus ambient temperature (copper surface under tab: S = 1 cm² (for D²PAK).

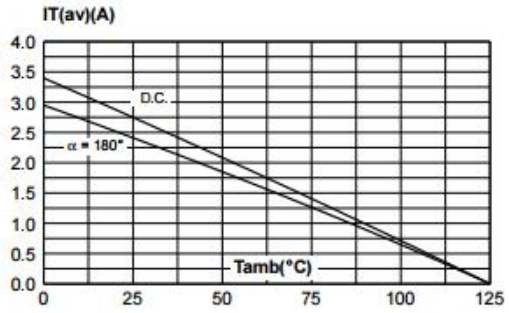
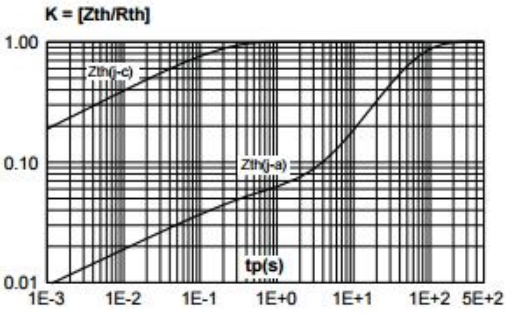
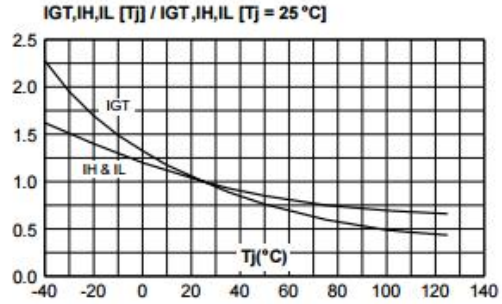


Fig. 3: Relative variation of thermal impedance versus pulse duration.





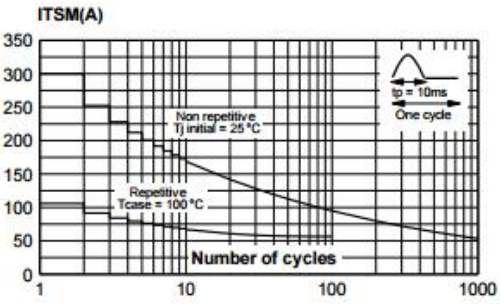


Fig. 6: Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp < 10 ms, and corresponding values of I^2t.

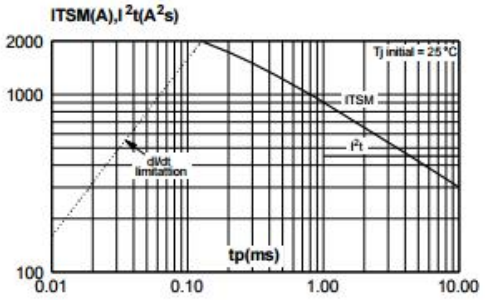


Fig. 7: On-state characteristics (maximum values).

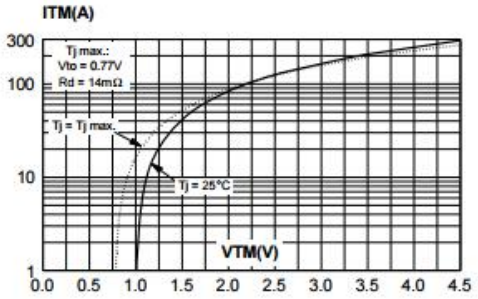


Fig. 8: Thermal resistance junction to ambient versus copper surface under tab (Epoxy printed circuit board FR4, copper thickness: 35 µm) (D^2PAK).