YEA SHIN TECHNOLOGY CO., LTD

YS150N05BA

N-Channel Enhancement MOSFET

VDS = 150V, ID = 35A

DESCRIPTION

The YS150N05BA uses advanced Trench technology and designs to provide excellent $R_{DS(ON)}$ with low gate charge.

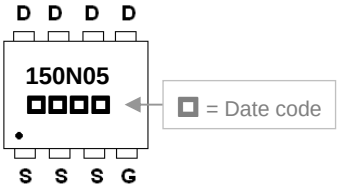
This device is suitable for use in PWM, load switching and general purpose applications.

The YS150N05BA meet the RoHS and Green Product requirement with full function reliability approved.

FEATURES

- Low On-Resistance
- Low Miller Charge
- Low Input Capacitance
- Green Device Available

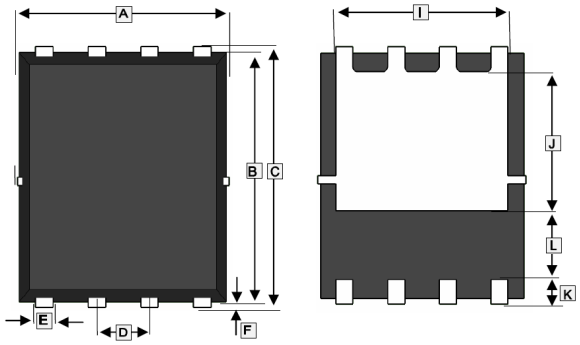
MARKING



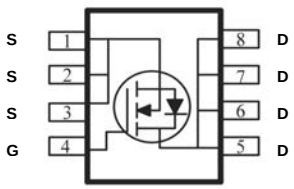
PACKAGE INFORMATION

Package	MPQ	Leader Size
PPAK5x6	3K	13 inch

PPAK5x6



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	4.8	5.1	G	0.8	1.1
B	5.7	5.9	H	0.254 Ref.	
C	5.9	6.2	I	4.0 Ref.	
D	1.27 BSC.		J	3.4 Ref.	
E	0.33	0.51	K	0.6 Ref.	
F	0.1	0.2	L	1.4 Ref.	



Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DS}	150	V
Gate-Source Voltage	V_{GS}	±30	V
Continuous Drain Current	I_D @T_C=25℃	35	A
	I_D @T_C=70℃	28	A
Pulsed Drain Current[1]	I_{DM}	75	A
Continuous Drain Current	I_D @T_A=25℃	6.8	A
	I_D @T_A=70℃	5.5	A
Total Power Dissipation	P_D @T_C=25℃	62.5	W
	P_D @T_A=25℃	2.3	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 ~ +150	℃

Thermal Data

Parameter	Symbol	Conditions	Max. Value	Unit
Thermal Resistance Junction-ambient[2]	$R_{\theta JA}$	Steady State	55	℃/W
Thermal Resistance Junction-case[2]	$R_{\theta JC}$	Steady State	2	℃/W

DEVICE CHARACTERISTICS

YS150N05BA

Electrical Characteristics (T_J = 25℃ unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV_{DSS}	150	-	-	V	V_{GS}=0, I_D=250uA
Gate Threshold Voltage	$V_{GS(th)}$	2.0	3.0	4.0	V	V_{DS}=V_{GS}, I_D=250uA
Gate-Source Leakage Current	I_{GSS}	-	-	±100	nA	V_{GS}= ±30V
Drain-Source Leakage Current	I_{DSS}	-	-	1	uA	V_{DS}=120V, V_{GS}=0
Static Drain-Source On-Resistance	$R_{DS(ON)}$	-	27	34	mΩ	V_{GS}=10V, I_D=15A
Total Gate Charge	Q_g	-	55	-	nC	I_D=15A V_{DS}=75V V_{GS}=10V
Gate-Source Charge	Q_{gs}	-	18	-		
Gate-Drain (“Miller”) Change	Q_{gd}	-	17	-		
Turn-on Delay Time	$T_{d(on)}$	-	22	-	ns	V_{DS}=75V I_D=15A V_{GS}=10V R_G=3Ω
Rise Time	T_r	-	10	-		
Turn-off Delay Time	$T_{d(off)}$	-	12	-		
Fall Time	T_f	-	35	-		
Input Capacitance	C_{iss}	-	1933	-	pF	V_{GS}=0V V_{DS}=30V f=1.0MHz
Output Capacitance	C_{oss}	-	147	-		
Reverse Transfer Capacitance	C_{rss}	-	49	-		

Source-Drain Diode

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Diode Forward Voltage	V_{SD}	-	-	1.3	V	I_S=15A, V_{GS}=0V
Reverse Recovery Time	t_{rr}	-	25	-	ns	I_F=15A, dI/dt=100A/μs, T_J=25℃
Reverse Recovery Charge	Q_{rr}	-	32	-	nC	

Notes: **1. The data tested by pulsed, pulse width ≦ 300us, duty cycle ≦ 2%.**

2. $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins. $R_{\theta JC}$ is guaranteed by design while $R_{\theta CA}$ is determined by the user's board design. $R_{\theta JA}$ shown below for single device operation on FR-4 in still air.

DEVICE CHARACTERISTICS

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CHARACTERISTIC CURVES

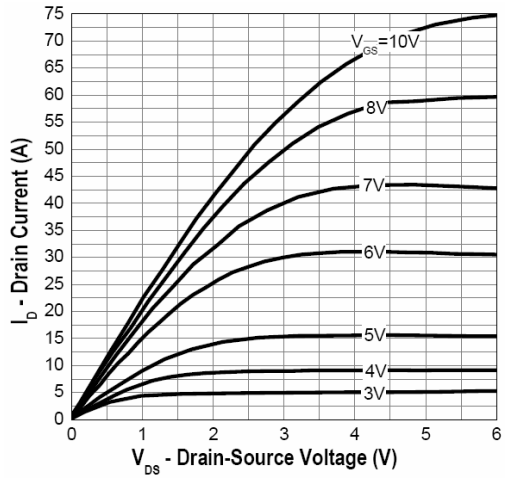

Fig.1 Typical Output Characteristics

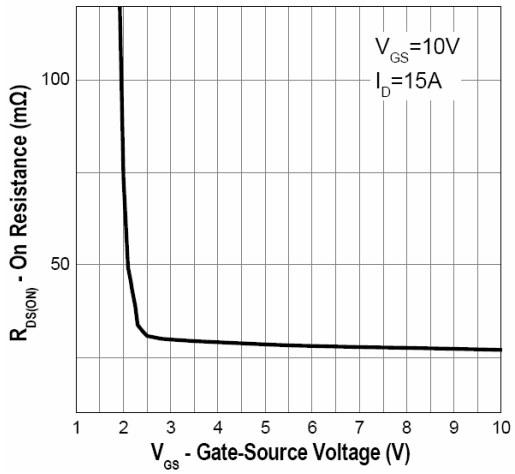

Fig.2 On-Resistance vs. G-S Voltage

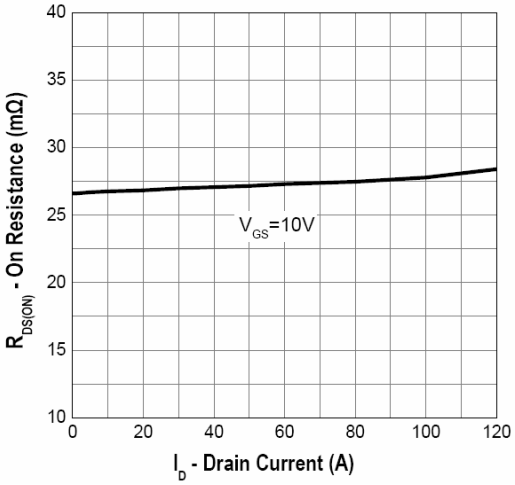

Fig.3 On-Resistance vs. Drain Current

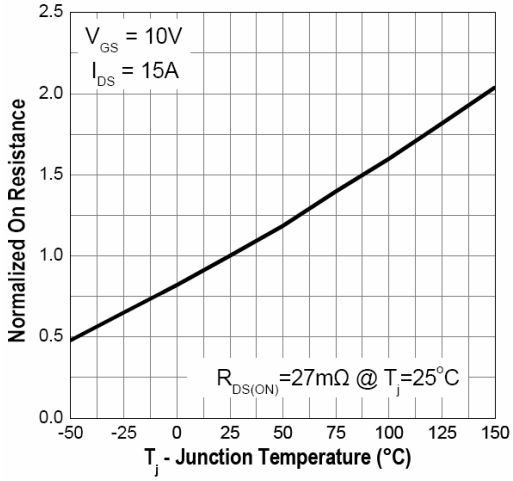

Fig.4 Normalized R_{DSON} vs. T_J

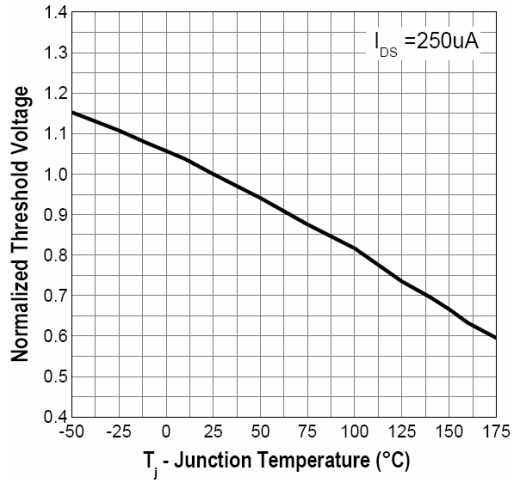

Fig.5 Normalized $V_{GS(th)}$ vs. T_J

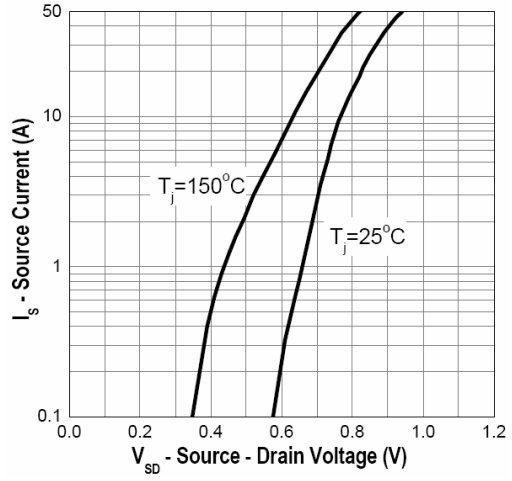

Fig.6 Forward Characteristics of Reverse

DEVICE CHARACTERISTICS

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CHARACTERISTIC CURVES

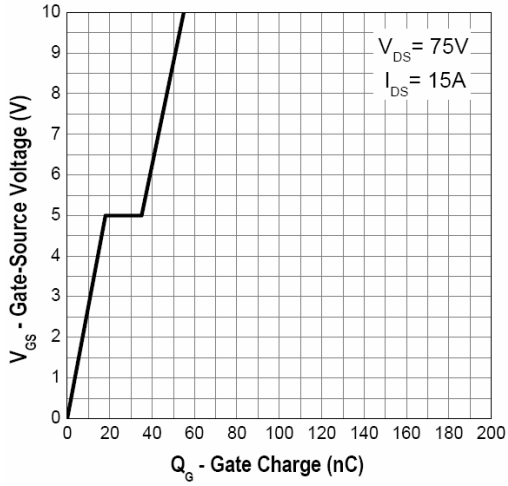

Fig.7 Gate Charge Characteristics

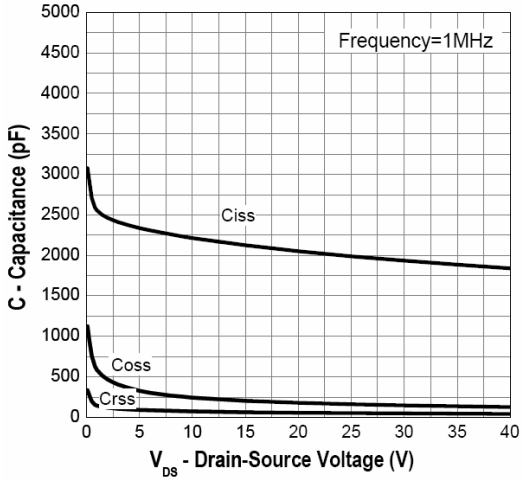

Fig.8 Capacitance Characteristics

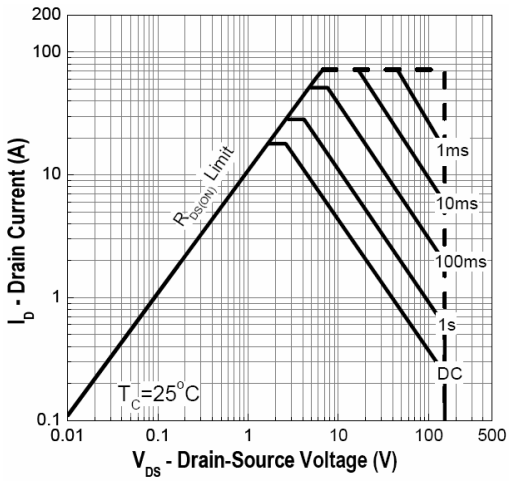

Fig.9 Safe Operating Area

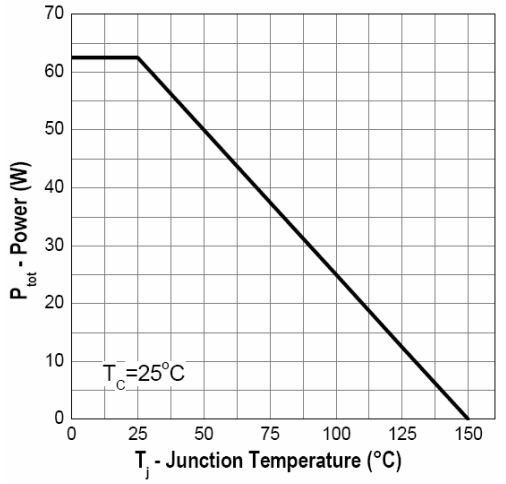

Fig.10 Power Dissipation

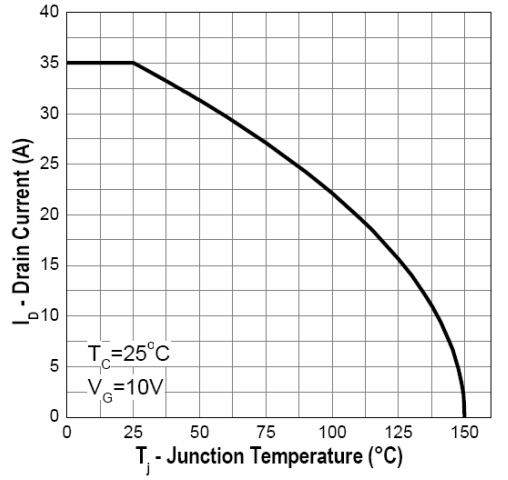

Fig.11 Drain Current vs. T_J

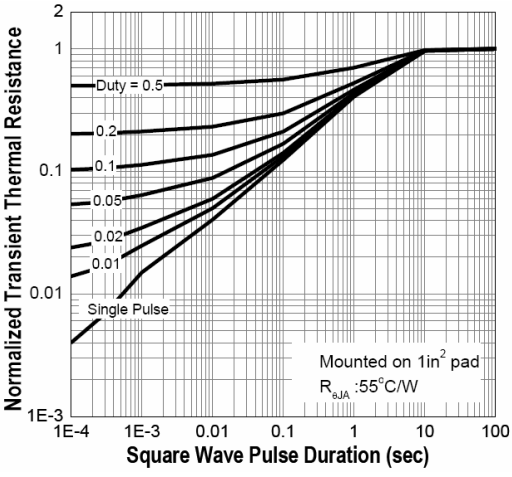

Fig.12 Transient Thermal Impedance