

工业型号	公司型号	通俗命名	H	封装标识	包装方式	每管数量	每盒数量	每箱数量
FQU15N10C FQD15N10C	H15N10U H15N10D	15N10	HAOHAI	U: TO-251 D: TO-252	条管装 卷盘装	80只/管 2.5K/卷	4Kpcs/盒 5Kpcs/盒	24Kpcs 25Kpcs

Features

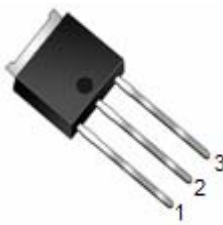
- Higher Current Rating
- Lower $R_{DS(on)}$
- Lower Capacitances
- Lower Total Gate Charge
- Tighter V_{SD} Specifications
- Avalanche Energy Specified

$I_D=14.7A$
 $BV_{DSS}=100V$
 $R_{DS(on)}=80m\Omega$

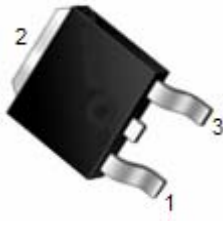
应用范围:
开关电源、LCD电源、LED驱动电源、机箱电源、UPS电源
各种充电器、整流器、逆变器、控制器、转换器、风扇控制板
以及电源适配器、汽车稳压器等线性放大和功率开关电路
其特点如下:

- 开关速度快
- 驱动简单
- 可并联使用
- 通态电阻低
- 封装形式: TO-251 (IPAK)、TO-252 (DPAK)

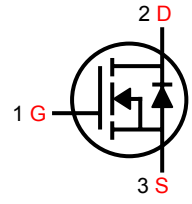
15N10 Series Pin Assignment



3-Lead Plastic TO-251
Package Code: U
Pin 1: Gate
Pin 2: Drain
Pin 3: Source



3-Lead Plastic TO-252
Package Code: D
Pin 1: Gate
Pin 2: Drain
Pin 3: Source

Series Symbol: 

Absolute Maximum Ratings

Symbol	Parameter	Value	Units
I_D	Drain to Current (Continuous)	$T_C=25^\circ C$	14.7
		$T_C=70^\circ C$	13.6
I_{DM}	Pulsed Drain Current	59	A
V_{DSS}	Drain-Source Voltage	100	V
V_{GSS}	Gate-to-Source Voltage (Continue)	± 20	
P_D	Maximum Power Dissipation	$T_C=25^\circ C$	34.7
		$T_C=70^\circ C$	22.2
T_j, T_{stg}	Operating and Storage Temperature Range	-55~+150	$^\circ C$
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	3.6	W/ $^\circ C$

* The device mounted on 1in² FR4 board with 2 oz copper

Electrical Characteristics ($T_J=25^{\circ}\text{C}$, unless otherwise specified)

■ Off Characteristics

Symbol	Characteristic	Min.	Typ.	Max.	Unit
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	100	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current ($V_{DS}=80\text{V}$, $V_{GS}=0\text{V}$)	--	--	1	μA
I_{GSS}	Gate-Source Leakage Current-Forward ($V_{GS}=\pm 20\text{V}$, $V_{DS}=0\text{V}$)	--	--	± 100	nA
I_{GSSR}	Gate-Source Leakage Current-Reverse ($V_{GS}=-\pm 30\text{V}$, $V_{DS}=0\text{V}$)	--	--	± 100	

■ On Characteristics

Symbol	Characteristic	Min.	Typ.	Max.	Unit
$V_{GS(th)}$	Gate Threshold Voltage ($V_{DS}=V_{GS}$, $I_D=250\mu\text{A}$)	1	--	3	V
$R_{DS(on)}$	Static Drain-Source On-Resistance ($V_{GS}=10\text{V}$, $I_D=8\text{A}$)	--	80	100	$\text{m}\Omega$
R_g	Gate-Resistance ($V_{DS}=0\text{V}$, $V_{GS}=0\text{V}$, $f=1\text{MHz}$)	--	0.9	-	Ω

■ Dynamic Characteristics

Symbol	Characteristic	Min.	Typ.	Max.	Unit
C_{iss}	Input Capacitance	--	890	--	pF
C_{oss}	Output Capacitance		58	25	
C_{rss}	Reverse Transfer Capacitance		23	5.5	

$V_{GS}=0\text{V}$
 $V_{DS}=15\text{V}$
 $f=1\text{MHz}$

■ Switching Characteristics

Symbol	Characteristic	Min.	Typ.	Max.	Unit
$t_{d(on)}$	Turn-on Delay Time	--	14	--	nS
t_r	Rise Time		33		
$t_{d(off)}$	Turn-off Delay Time		39		
t_f	Fall Time		5		
Q_g	Total Gate Charge	--	24	--	nC
Q_g	Total Gate Charge		13	--	
Q_{gs}	Gate-Source Charge		4.6	--	
Q_{gd}	Gate-Drain Charge		7.6	--	
V_{SD}	Drain-Source Diode Forward Voltage	-	0.9	1.2	V

$V_{DS}=50\text{V}$, $R_L=5\Omega$
 $V_{GEN}=10\text{V}$, $R_G=1\Omega$

$V_{DS}=80\text{V}$, $I_D=10\text{A}$, $V_{GS}=10\text{V}$

$V_{DS}=80\text{V}$
 $V_{GS}=4.5\text{V}$
 $I_D=10\text{A}$

$V_{GS}=0\text{V}$, $I_S=8\text{A}$

Notes:

a. Pulse test: pulse width $\cong 300\mu\text{s}$, duty cycle $\cong 2\%$, Guaranteed by design, not subject to production testing.

b. Matsuki reserves the right to improve product design, functions and reliability without notice.

Typical Performance Characteristics (Continued)

Fig 1. On-Region vs. Junction Temperature

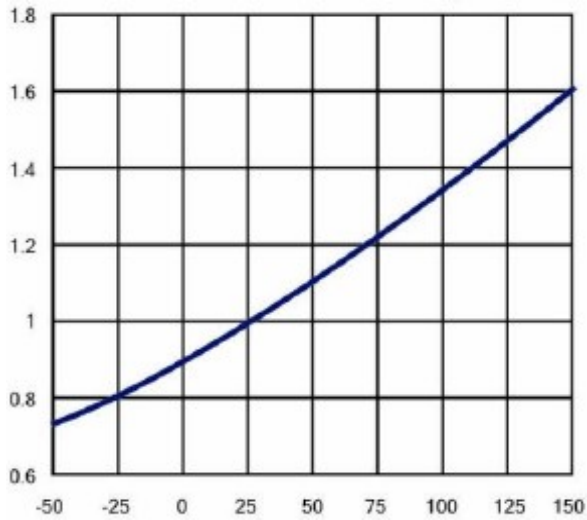


Fig 2. On-Resistance vs. Drain Current

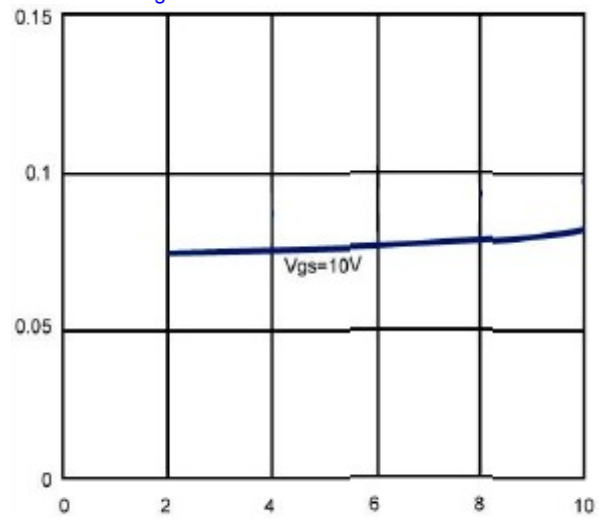


Fig 3. Capacitance

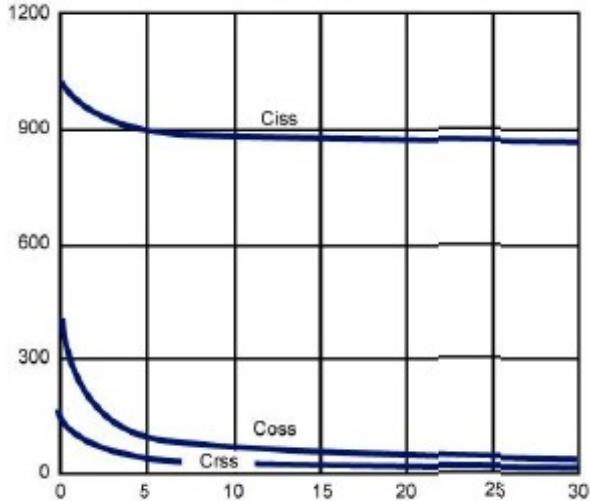


Fig 4. On-Resistance vs. Gate-to-Source Voltage

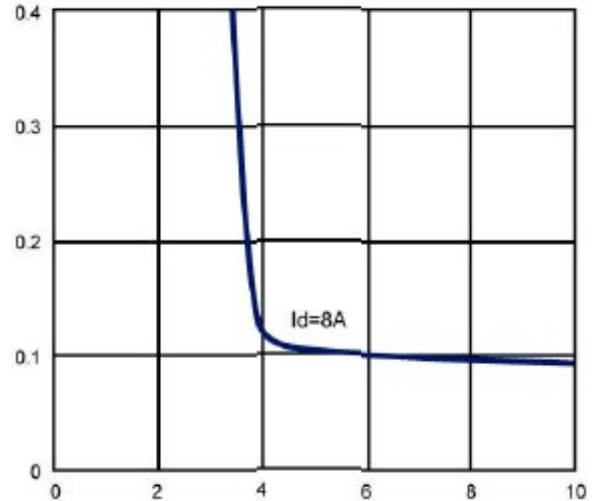


Fig 5. Threshold Voltage

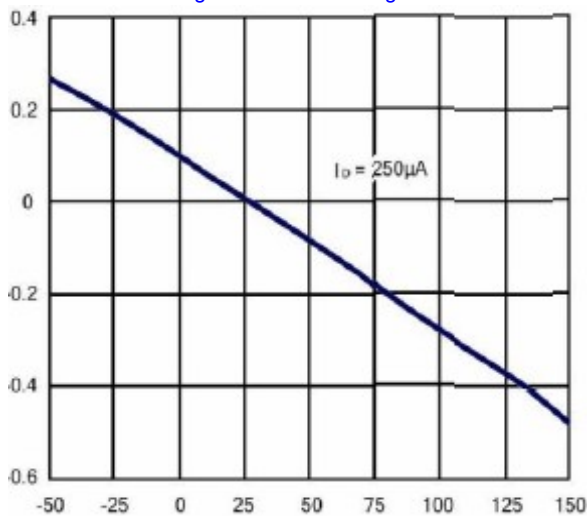


Fig 6. On-Region Characteristics

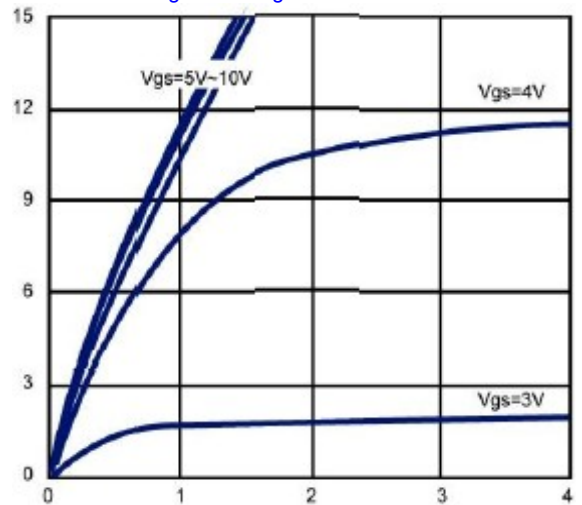


Fig 7. Gate Charge

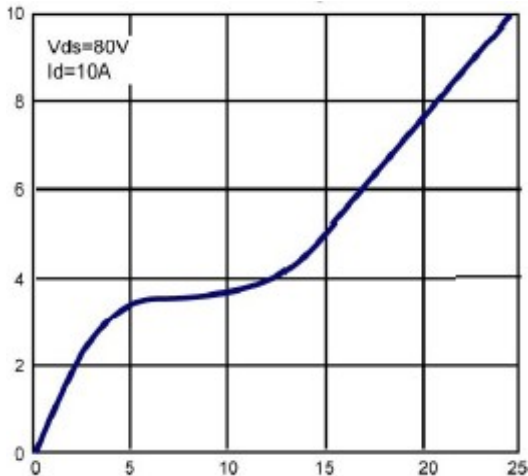


Fig 8. Body-Diode characteristics

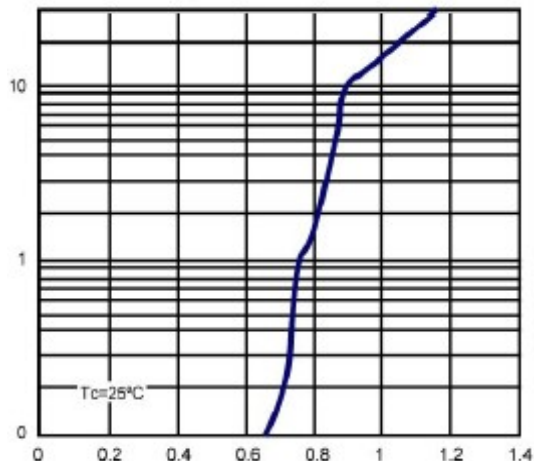


Fig 9. Maximum Forward Biased Safe Operating Area

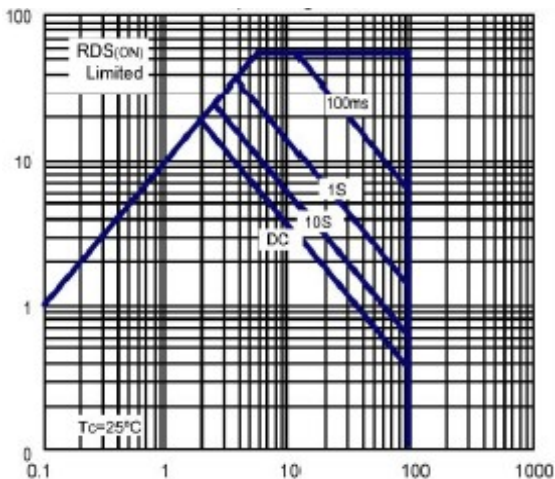
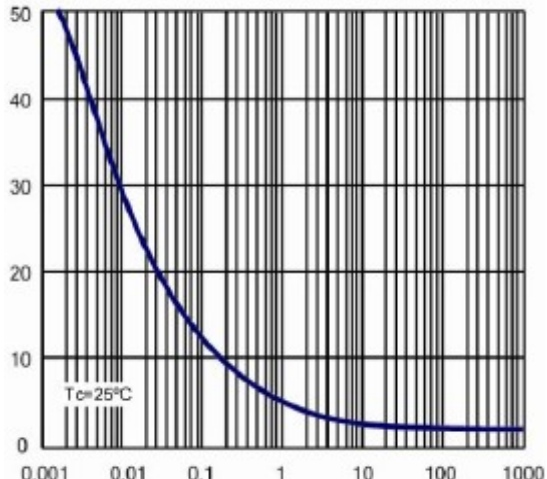


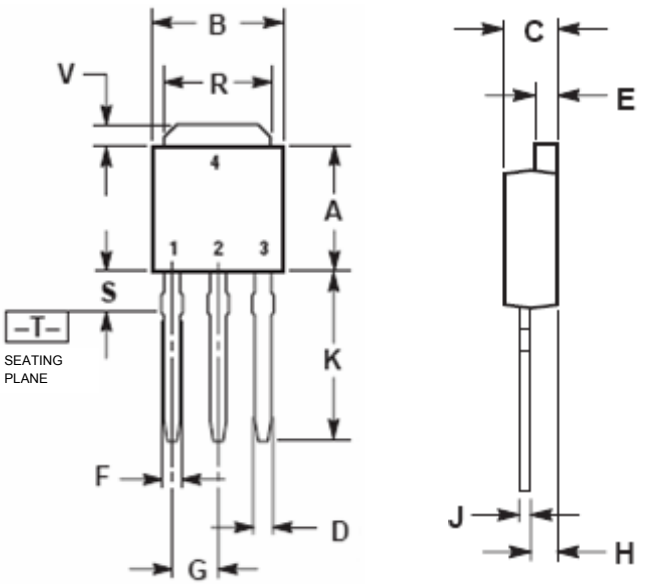
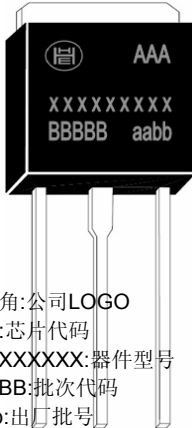
Fig 10. Single Pulse Maximum Power Dissipation



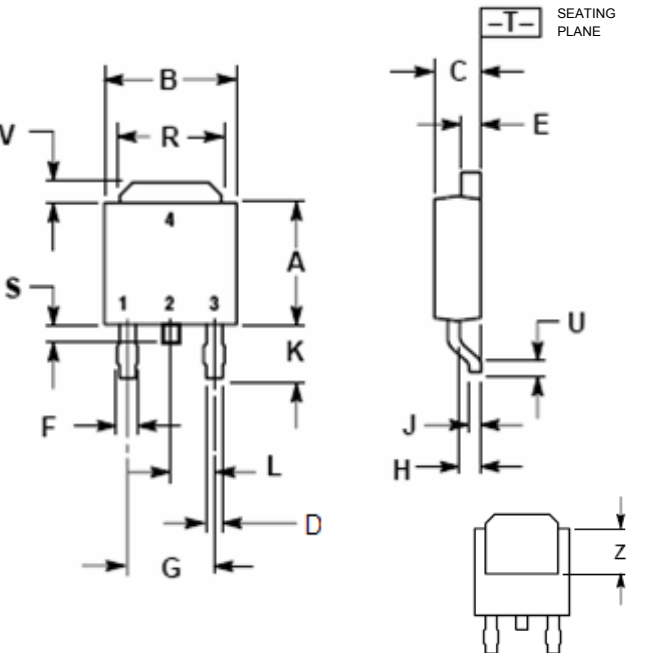

器件封装相关环保指标 有害物质或元素

部件名称	铅(Pb)	汞(Hg)	镉(Cd)	六价铬[Cr(VI)]	多溴联苯(PBB)	多溴苯醚 (PBDE)
引线框	○	○	○	○	○	○
塑封树脂	○	○	○	○	○	○
管芯	○	○	○	○	○	○
内引线	○	○	○	○	○	○
焊料	×	○	○	○	○	○
说明	○：表示该有毒有害物质的含量在 SJ/T11363-2006 标准的限量要求以下。 ×：表示该有毒有害物质的含量超出 SJ/T11363-2006 标准的限量要求。 目前产品的焊料中含有铅 (Pb) 成分，但属于欧盟 RoHS 指令豁免范围。					

PACKAGE DIMENSIONS

■ TO-251 (IPAK) Dimension (TO-251或IPAK封装尺寸数据, 单位:mm)				元件打印标识	
 <p>SEATING PLANE</p>	DIM	MILLIMETERS		 <p>左上角:公司LOGO AAA:芯片代码 XXXXXXXXXX:器件型号 BBBBB:批次代码 aabb:出厂批号 其中: aa:出厂年份 bb:出厂自然周 (01-53)</p>	
			Min.		Max.
	A	5.97	6.35		
	B	6.35	6.73		
	C	2.19	2.38		
	D	0.69	0.88		
	E	0.84	1.01		
	F	0.94	1.19		
	G	2.29 BSC			
	H	0.87	1.01		
	J	0.46	0.58		
	K	8.89	9.65		
	R	4.45	5.46		
	S	1.27	2.28		
V	0.77	1.27			

包装规格: 条管装, 每管80只, 每盒4000只(4Kpcs), 每箱24000只(24Kpcs)

■ TO-252 (DPAK) Dimension (TO-252或DPAK片式表面贴封装尺寸数据, 单位: mm)				元件打印标识	
 <p>SEATING PLANE</p>	DIM	MILLIMETERS		 <p>左上角:公司LOGO AAA:芯片代码 XXXXXXXXXX:器件型号 BBBBB:批次代码 aabb:出厂批号 其中: aa:出厂年份 bb:出厂自然周 (01-53)</p>	
			Min.		Max.
	A	5.97	6.35		
	B	6.35	6.73		
	C	2.19	2.38		
	D	0.69	0.88		
	E	0.84	1.01		
	F	0.94	1.19		
	G	4.58 BSC			
	H	0.87	1.01		
	J	0.46	0.58		
	K	2.60	2.89		
	L	2.29 BSC			
	R	4.45	5.46		
S	0.51	1.27			
U	0.51	--			
V	0.77	1.27			
Z	3.51	--			

包装规格: SMD表面贴、载带卷盘包装, 每卷2500只(2.5Kpcs), 每盒5000只(5Kpcs), 每箱25000只(25Kpcs)



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