TECH PUBLIC
台舟电子

FQB34P10TM

P-Channel Power MOSFET

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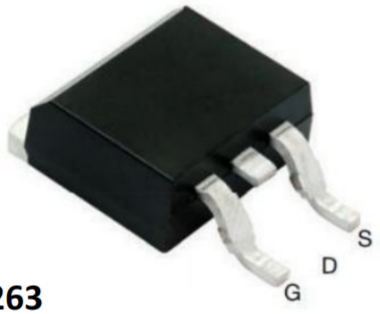
Product Summary

- V_{DS} -100 V
- I_{DS} -30A
- $R_{DS(ON)}$ (at V_{GS}= -10V) <60mΩ

Application

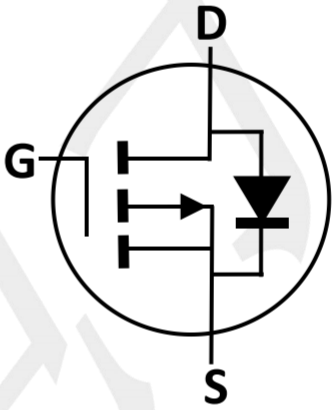
- DC/DC Converter
- Portable equipment and battery
- Power Switch

Package and Pin Configuration



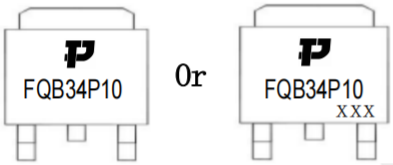
TO-263

Circuit diagram



Equivalent Circuit

Marking



xxx is internal code

Absolute Maximum Ratings (T_A=25℃unless otherwise noted)

PARAMETER	SYMBOL	LIMIT	UNIT
Drain-Source Voltage	V_{DS}	-100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	-30	A
Pulsed Drain Current (note1)	I_{DM}	-88	A
Maximum Power Dissipation	P_D	79	W
Operating Junction Temperature Range	T_J	-55 to +150	℃
Storage Temperature Range	T_{stg}	-55 to +150	℃

Thermal Characteristic

PARAMETER		Symbol	Value	Unit
Thermal Resistance from Junction to Ambient(t≤10s)	PCB Mount (note2)	$R_{\theta JA}$	50	°C/W

notes 1. Repetitive Rating: Pulse width limited by maximum junction temperature.

2 . When mounted on 1" square PCB (FR4 material).

Electrical Characteristics (T_A=25℃unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNIT
Static						
Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=-250μA	BV_{DSS}	-100	--	--	V
Gate-Source Threshold Voltage	V_{DS}=V_{GS} , I_D= -250μA	$V_{GS(th)}$	-2	-3	-4	V
Gate-Source Leakage	V_{DS}=0V, V_{GS}= ±20V	I_{GSS}	--	--	±100	nA
Zero Gate Voltage Drain Current	V_{DS}= -80V, V_{GS}=0V	I_{DSS}	--	-0.1	-1	μA
	V_{DS}= -80V, T_J=125°C		--	-10	-100	μA
Drain-Source On-State Resistance (Note 1)	V_{GS}= -10V, I_D= -1A	R_{DS}(on)	--	60	70	mΩ
	V_{GS}= -4.5V, I_D= -1A		--	70	80	
Forward Transconductance (Note 2)	V_{DS}= -5V, I_D= -20A	g_{fs}	--	24	--	S
Dynamic (Note 2)						
Total Gate Charge (Note 3)	V_{DS} = -50V, I_D = -20A, V_{GS} = -10V	Q_g	--	41	--	nC
Gate-Source Charge (Note 3)		Q_{gs}	--	7.8	--	
Gate-Drain Charge (Note 3)		Q_{gd}	--	8.5	--	
Input Capacitance	V_{DS} = -50V, V_{GS} = 0V, F= 1.0MHz	C_{iss}	--	1900	--	pF
Output Capacitance		C_{oss}	--	151	--	
Reverse Transfer Capacitance		C_{rss}	--	20	--	
Switching						
Turn-On Delay Time (Note 3)	V_{DD} = -50V, I_D= -20A, V_{GS} = -10V, R_{GEN} = 6Ω	$t_{d(on)}$	--	14	--	nS
Rise Time (Note 3)		t_r	--	38	--	
Turn-Off Delay Time (Note 3)		$t_{d(off)}$	--	100	--	
Fall Time (Note 3)		t_f	--	106	--	
Source-Drain Diode Ratings and Characteristics (Note 2)						
Forward Voltage	V_{GS} = 0V, I_{SD} = -20A	V_{SD}	--	-0.76	-1.2	V
Continuous Source Current	Integral reverse diode in the MOSFET	I_S	--	--	-30	A
Pulsed Current (Note 1)		I_{SM}	--	--	-88	A

Notes:

1. Pulse test; pulse width ≤ 300 μS, duty cycle ≤ 2%.
2. Guaranteed by design, not subject to production testing.
3. Independent of operating temperature

TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)

Figure 1. Output Characteristics

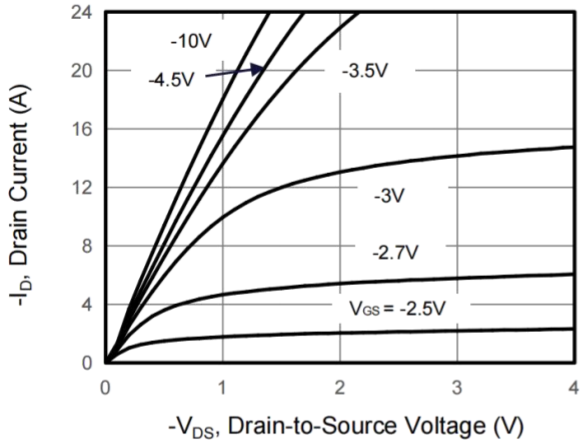


Figure 2. Transfer Characteristics

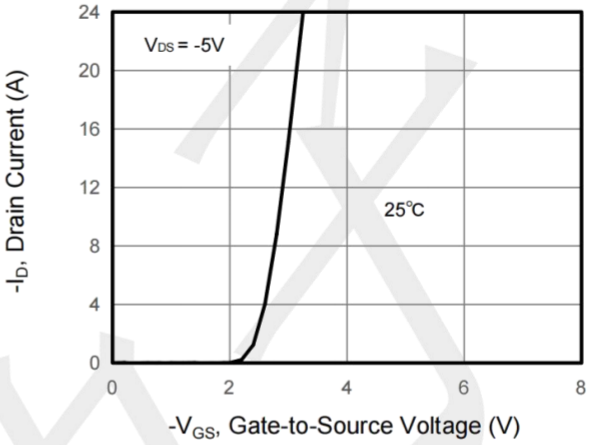


Figure 3.Drain Source On Resistance

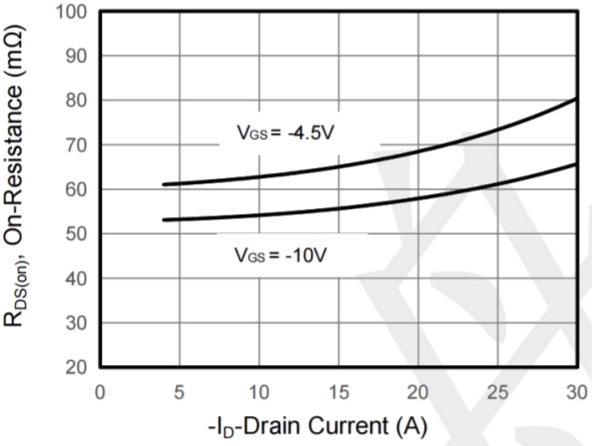


Figure 4. Gate Charge

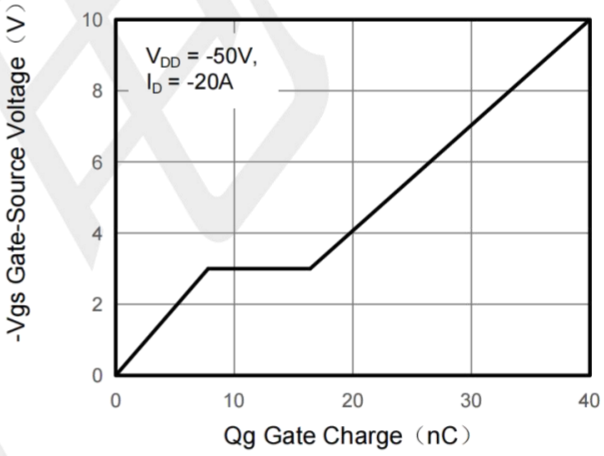


Figure 5. Capacitance

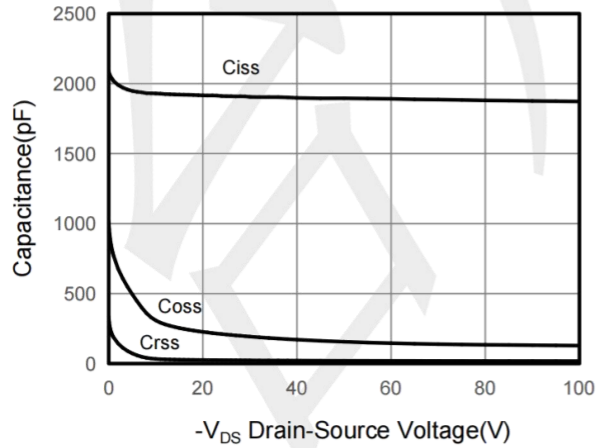
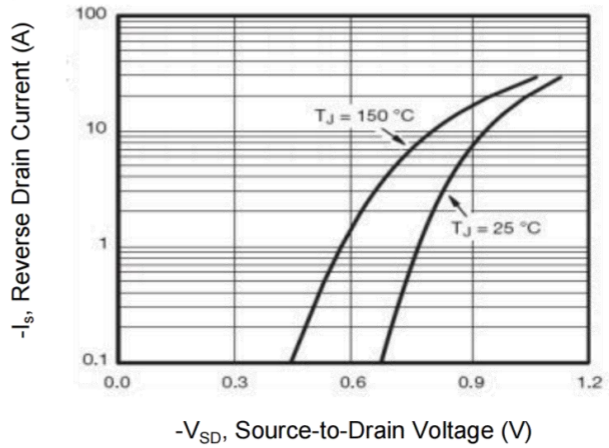
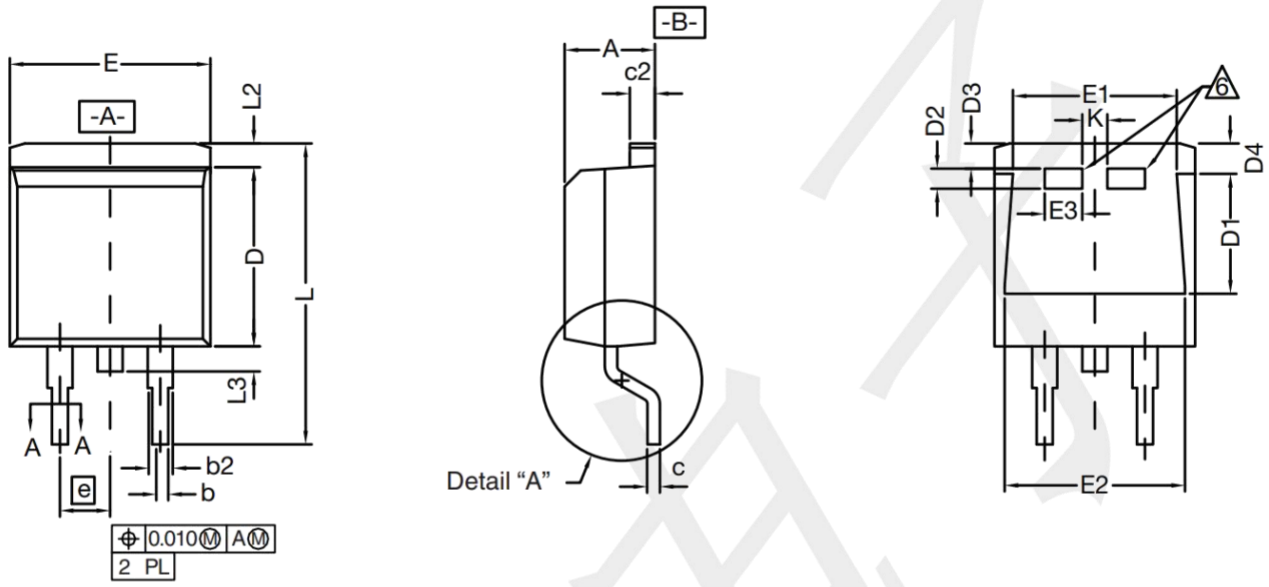
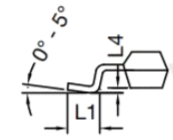


Figure 6. Source-Drain Diode Forward

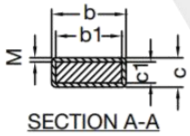


Package Information TO-263





DETAIL A (ROTATED 90°)



SECTION A-A

DIM.		INCHES MIN.	INCHES MAX.	MILLIMETERS MIN.	MILLIMETERS MAX.
A		0.160	0.190	4.064	4.826
b		0.020	0.039	0.508	0.990
b1		0.020	0.035	0.508	0.889
b2		0.045	0.055	1.143	1.397
c*	Thin lead	0.013	0.018	0.330	0.457
	Thick lead	0.023	0.028	0.584	0.711
c1	Thin lead	0.013	0.017	0.330	0.431
	Thick lead	0.023	0.027	0.584	0.685
c2		0.045	0.055	1.143	1.397
D		0.340	0.380	8.636	9.652
D1		0.220	0.240	5.588	6.096
D2		0.038	0.042	0.965	1.067
D3		0.045	0.055	1.143	1.397
D4		0.044	0.052	1.118	1.321
E		0.380	0.410	9.652	10.414
E1		0.245	-	6.223	-
E2		0.355	0.375	9.017	9.525
E3		0.072	0.078	1.829	1.981
e		0.100 BSC		2.54 BSC	
K		0.045	0.055	1.143	1.397
L		0.575	0.625	14.605	15.875
L1		0.090	0.110	2.286	2.794
L2		0.040	0.055	1.016	1.397
L3		0.050	0.070	1.270	1.778
L4		0.010 BSC		0.254 BSC	
M		-	0.002	-	0.050

ECN: T13-0707-Rev. K, 30-Sep-13
DWG: 5843

Notes

1. Plane B includes maximum features of heat sink tab and plastic.
2. No more than 25 % of L1 can fall above seating plane by max. 8 mils.
3. Pin-to-pin coplanarity max. 4 mils.
4. *: Thin lead is for SUB, SYB.
   Thick lead is for SUM, SYM, SQM.
5. Use inches as the primary measurement.
6. This feature is for thick lead.