



P-Channel Enhancement MOSFET



VDS = -20V, ID = -4A

DESCRIPTION

The YS3415 provide the designer with the best combination of fast switching, ruggedized device design, low on-resistance and cost-effectiveness. The SOT-23 package is universally preferred for all commercial-industrial surface mount applications and suited for low voltage applications such as DC/DC converters.

FEATURES

- Lower Gate Charge
- Simple Drive Requirement
- Fast Switching Characteristic

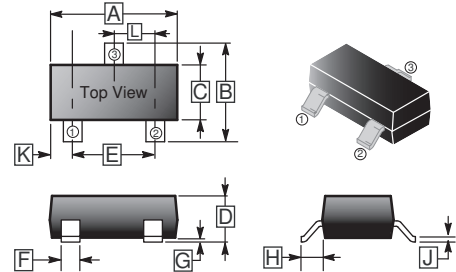
MARKING

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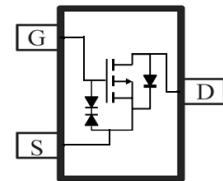
PACKAGE INFORMATION

Package	MPQ	Leader Size
SOT-23	3K	7 inch

SOT-23



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	0.01	0.18
B	2.10	2.65	H	0.5 Typ.	
C	1.20	1.40	J	0.08	0.20
D	0.89	1.17	K	0.6 REF.	
E	1.78	2.04	L	0.95 BSC.	
F	0.30	0.50			



ABSOLUTE MAXIMUM RATINGS (TA=25°C unless otherwise specified)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V _{DS}	-20	V
Gate-Source Voltage	V _{GS}	±8	V
Continuous Drain Current ¹	I _D	-4	A
Pulsed Drain Current ³	I _{DM}	-12	A
Maximum Power Dissipation ¹	P _D	1.4	W
Maximum Power Dissipation ²		0.35	
Operating Junction and Storage Temperature	T _J , T _{STG}	150, -55~150	°C

THERMAL DATE

Parameter	Symbol	Value	Unit
Thermal Resistance from Junction to Ambient ¹	R _{θJA}	90	°C / W
Thermal Resistance from Junction to Ambient ²		357	

DEVICE CHARACTERISTICS

YS3415

ELECTRICAL CHARACTERISTICS (T_J=25°C unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	-20	-	-	V	V _{GS} =0, I _D = -250μA
Gate-Threshold Voltage	V _{GS(th)}	-0.3	-	-1	V	V _{DS} =V _{GS} , I _D = -250μA
Gate-Source Leakage Current	I _{GSS}	-	-	±10	μA	V _{GS} = ±8V, V _{DS} =0
		-	-	±1		V _{GS} = ±4.5V, V _{DS} =0
Drain-Source Leakage Current	I _{DSS}	-	-	-1	μA	V _{DS} = -16V, V _{GS} =0
Forward Transfer conductance ⁴	g _{fs}	8	-	-	S	V _{DS} = -5V, I _D = -4A
Diode Forward Voltage ⁴	V _{SD}	-	-	-1	V	I _S = -1A, V _{GS} =0
Static Drain-Source On-Resistance ⁴	R _{DS(on)}	-	-	50	mΩ	V _{DS} = -4.5V, I _D = -4A
		-	-	60		V _{GS} = -2.5V, I _D = -4A
		-	-	73		V _{GS} = -1.8V, I _D = -2A
Switching Characteristics						
Total Gate Charge	Q _g	-	17.2	-	nC	I _D = -4A V _{DS} = -10V V _{GS} = -4.5V
Gate-Source Charge	Q _{gs}	-	1.3	-		
Gate-Drain Charge	Q _{gd}	-	4.5	-		
Turn-on Delay Time	T _{d(on)}	-	9.5	-	nS	V _{DS} = -10V V _{GS} = -4.5V R _{GEN} =3Ω R _L =2.5Ω
Rise Time	T _r	-	17	-		
Turn-off Delay Time	T _{d(off)}	-	94	-		
Fall Time	T _f	-	35	-		
Dynamic Characteristics						
Input Capacitance	C _{iss}	-	1450	-	pF	V _{GS} =0 V _{DS} = -10V f=1MHz
Output Capacitance	C _{oss}	-	205	-		
Reverse Transfer Capacitance	C _{rss}	-	160	-		
Gate Resistance	R _g	-	6.5	-	Ω	V _{GS} =V _{DS} =0, f=1MHz

Notes:

1. Surface mounted on a 1 inch² FR-4 board with 2OZ copper. t ≤ 10s
2. Surface mounted on FR4 Board using the minimum recommended pad size
3. The power dissipation is limited by 150°C junction temperature, P_w ≤ 300μs, Duty cycle ≤ 1%
4. The data tested by pulsed , pulse width ≤ 300μs , duty cycle ≤ 2%

DEVICE CHARACTERISTICS

YS3415

CHARACTERISTIC CURVES

