CMD417/CMU417

Cmos

P-Channel 30-V (D-S) MOSFET

General Description

These miniature surface mount MOSFETs utilize a high cell density trench process to provide low RDS(on)and to ensure minimal power loss and heat dissipation. Typical applications are DC-DC converters and power management in portable and battery-powered products such as computers, printers,PCMCIA cards, cellular and cordless telephones.

Features

- Advanced high cell density Trench technology
- Fast switching speed
- Lower On-resistance
- 100% EAS Guaranteed
- Simple Drive Requirement

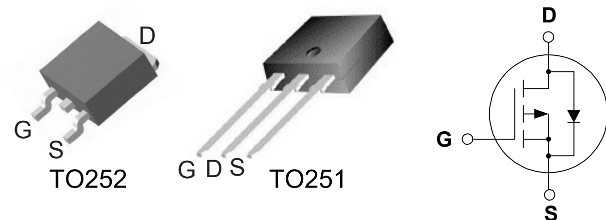
Product Summery

BVDSS	RDSON	ID
-30V	30mΩ	-30A

Applications

- DC-DC Converters
- Desktop PCs
- LED controller

TO252 / TO251 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-30	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25˚C	Continuous Drain Current[1]	-30	A
I_D@T_C=100˚C	Continuous Drain Current[1]	-20	A
I_{DM}	Pulsed Drain Current[2]	-90	A
EAS	Single Pulse Avalanche Energy[3]	32	mJ
I_{AS}	Avalanche Current	-30	A
P_D@T_C=25˚C	Total Power Dissipation	50	W
T_{STG}	Storage Temperature Range	-55 to 175	˚C
T_J	Operating Junction Temperature Range	-55 to 175	˚C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient[1]	---	50	˚C/W
$R_{\theta JC}$	Thermal Resistance Junction -Case[1]	---	3	˚C/W

Electrical Characteristics (T_J=25 ℃, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=-250uA	-30	---	---	V
$\triangle BV_{DSS}/\triangle T_J$	BVDSS Temperature Coefficient	Reference to 25℃ , I_D=-1mA	---	-0.02	---	MV/℃
$R_{DS(ON)}$	Static Drain-Source On-Resistance[2]	V_{GS}=-10V , I_D=-20A	---	25	30	mΩ
		V_{GS}=-4.5V , I_D=-7A	---	28	50	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =-250uA	-1	---	-3	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=-24V, V_{GS}=0V , T_J=25℃	---	---	-1	uA
		V_{DS}=-24V, V_{GS}=0V , T_J=150 ℃	---	---	-25	
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=-5V , I_D=-20A	---	18	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	6	---	Ω
Q_g	Total Gate Charge	V_{DS}=-15V, V_{GS}=-10V, I_D=-20A	---	16	26	nC
Q_{gs}	Gate-Source Charge		---	3.4	---	
Q_{gd}	Gate-Drain Charge		---	5.6	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD}=-15V, V_{GS}=-10V, R_G=3Ω I_D=-20A	---	14	---	ns
T_r	Rise Time		---	35	---	
$T_{d(off)}$	Turn-Off Delay Time		---	51	---	
T_f	Fall Time		---	38	---	
C_{iss}	Input Capacitance	V_{DS}=-25V, V_{GS}=0V , f=1MHz	---	1050	---	pF
C_{oss}	Output Capacitance		---	285	---	
C_{rss}	Reverse Transfer Capacitance		---	200	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current[1]	V_G=V_D=0V , Force Current	---	---	-30	A
I_{SM}	Pulsed Source Current[2]		---	---	-90	A
V_{SD}	Diode Forward Voltage[2]	V_{GS}=0V , I_S=-1A , T_J=25℃	---	---	-1	V

Note :
1.The data tested by surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.
2.The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%
3.The EAS data shows Max. rating . The test condition is V_{DD}=-24V,V_{GS}=-10V,L=0.3mH,I_L=-20A