

General Description

The 50P06 is a P-channel Power MOSFET. It uses advanced trench technology to provide excellent RDS(ON). This device is high current load applications.

Features

- Fast switching
- Lower On-resistance
- 100% avalanche tested
- RoHS Compliant

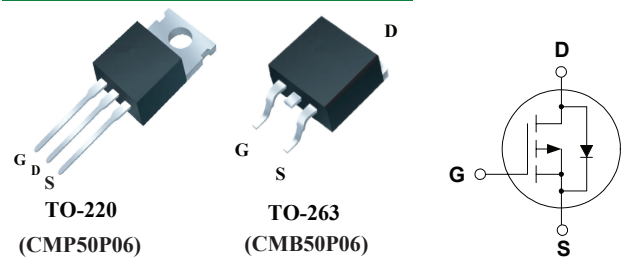
Product Summary

BVDSS	RDSON	ID
-60V	25mΩ	-50A

Applications

- DC-DC Converters
- Load switch

TO-220/263 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-60	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^\circ C$	Continuous Drain Current	-50	A
$I_D@T_C=100^\circ C$	Continuous Drain Current	-35	A
I_{DM}	Pulsed Drain Current ¹	-150	A
EAS	Single Pulse Avalanche Energy ²	400	mJ
$P_D@T_C=25^\circ C$	Total Power Dissipation	150	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ C$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ C$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	62.5	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance Junction-case	---	0.94	$^\circ C/W$

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-60	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance ³	$V_{GS}=-10V, I_D=-10A$	---	---	25	m Ω
		$V_{GS}=-4.5V, I_D=-10A$	---	---	32	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=-250\mu A$	-1	---	-3	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=-60V, V_{GS}=0V, T_J=25^\circ\text{C}$	---	---	-1	μA
		$V_{DS}=-48V, V_{GS}=0V, T_J=150^\circ\text{C}$	---	---	-10	
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=-15V, I_D=-11A$	---	20	---	S
Q_g	Total Gate Charge ³	$V_{DS}=-48V, I_D=-50A$ $V_{GS}=-10V$	---	80	---	nC
Q_{gs}	Gate-Source Charge		---	15	---	
Q_{gd}	Gate-Drain Charge		---	40	---	
$T_{d(on)}$	Turn-On Delay Time ³	$V_{DD}=-30V, R_G=25\Omega$ $I_D=-23.5A$	---	50	---	ns
T_r	Rise Time		---	450	---	
$T_{d(off)}$	Turn-Off Delay Time		---	100	---	
T_f	Fall Time		---	190	---	
C_{iss}	Input Capacitance	$V_{DS}=-25V, V_{GS}=0V, f=1\text{MHz}$	---	4000	---	pF
C_{oss}	Output Capacitance		---	1300	---	
C_{rss}	Reverse Transfer Capacitance		---	320	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V, \text{Force Current}$	---	---	-50	A
I_{SM}	Pulsed Source Current ¹		---	---	-150	A
V_{SD}	Diode Forward Voltage ³	$V_{GS}=0V, I_F=-10A$	---	---	-1.2	V

Typical Characteristics

