描述 / Descriptions

P 沟道 TO-220AB封装场效应管。

P-CHANNEL MOSFET in a TO-220AB Plastic Package

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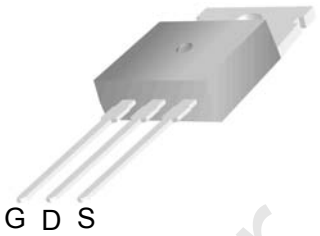


特征 / Features

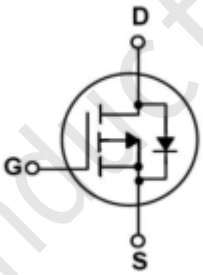
大电流输出能力。无卤产品。

High Current Capability. HF Product.

用途 / Applications

交流负载开关，蓄电池充电/放电保护。

AC-in load switch,Battery protection charge/discharge.



极限参数 / Absolute Maximum Ratings(Ta=25℃)

参数 Parameter		符号 Symbol	数值 Rating	单位 Unit
Drain-Source Voltage		V_{DSS}	-60	V
Drain Current		I_D(Tc=25℃)	-20	A
Drain Current - Pulsed		I_{DM}	-80	A
Gate-Source Voltage		V_{GS}	±20	V
Avalanche Current		I_{AS}	13.8	A
Avalanche energy L=0.5mH		E_{AS}	65	mJ
Power Dissipation		P_D(Tc=25℃)	20	W
		P_D(Tc=100℃)	10	W
Junction and Storage Temperature Range		T_j, T_{stg}	-55～150	℃
Maximum Junction-to-Ambient	t ≤ 10s	$R_{\theta JA}$	30	℃/W
Maximum Junction-to-Ambient	Steady-State		60	
Maximum Junction-to-Case	Steady-State	$R_{\theta JC}$	7.5	

电性能参数 / Electrical Characteristics(Ta=25℃)

参数 Parameter	符号 Symbol	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=-250μA	-60	-70		V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-60V V_{GS}=0V			-1.0	μA
		V_{DS}=-60V V_{GS}=0V T_J=55°C			-5.0	μA
Gate-Body Leakage Current Forward	I_{GSS}	V_{GS}=±20V V_{DS}=0V			±0.1	μA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} I_D=250μA	-1	-1.7	-2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)1}$	V_{GS}=-10V I_D=-20A		87	92	mΩ
	$R_{DS(on)2}$	V_{GS}=-4.5V I_D=-10A		98	102	mΩ
Diode Forward Voltage	V_{SD}	I_S=-1A V_{GS}=0V		-0.7	-1.2	V

参数 Parameter	符号 Symbol	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Input Capacitance	C_{iss}	V_{DS}=-25V V_{GS}=0V f=1.0MHz		1650		pF
Output Capacitance	C_{oss}			330		
Reverse Transfer Capacitance	C_{rss}			205		
Gate resistance	R_g	V_{GS}=0V V_{DS}=0V f=1MHz		6.4		Ω
Total Gate Charge	Q_g(10V)	V_{GS}=-10V V_{DS}=-30V I_D=-12A		7.5		nC
Total Gate Charge	Q_g(4.5V)			3.8		
Gate Source Charge	Q_{gs}			1.2		
Gate Drain Charge	Q_{gd}			1.9		
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=-10V V_{DS}=-30V R_L=2.5Ω R_{GEN}=3Ω		4.2		ns
Turn-On Rise Time	t_r			3.4		
Turn-Off Delay Time	$t_{d(off)}$			16		
Turn-Off Fall Time	t_f			2		
Body Diode Reverse Recovery Time	t_{rr}	I_F=-12A dI/dt=500A/ms		27		ns
Body Diode Reverse Recovery Charge	Q_{rr}	I_F=-12A dI/dt=500A/ms		30		nC

电参数曲线图 / Electrical Characteristic Curve

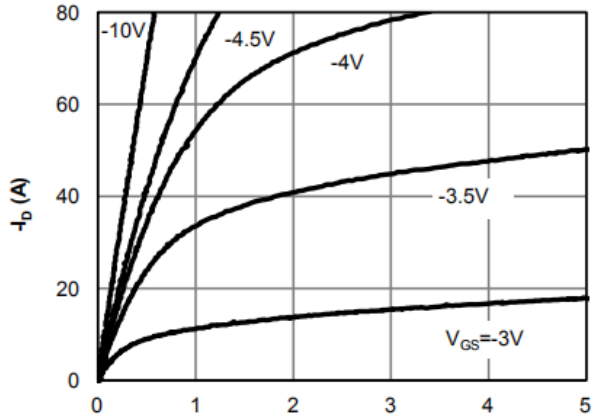
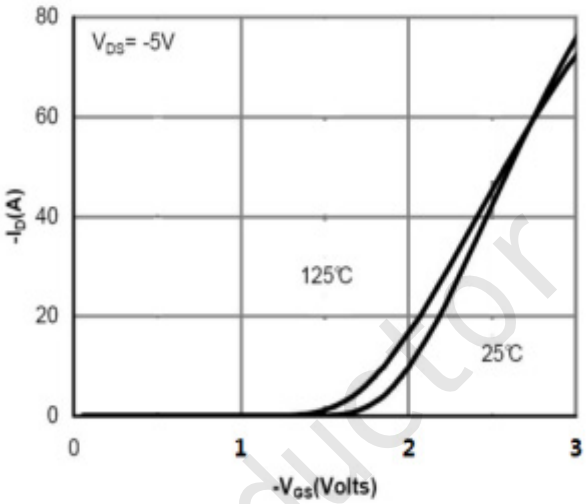


Figure 1: On-Region Characteristics



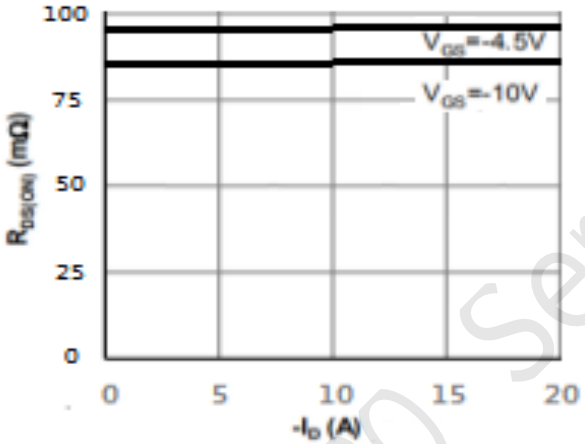


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

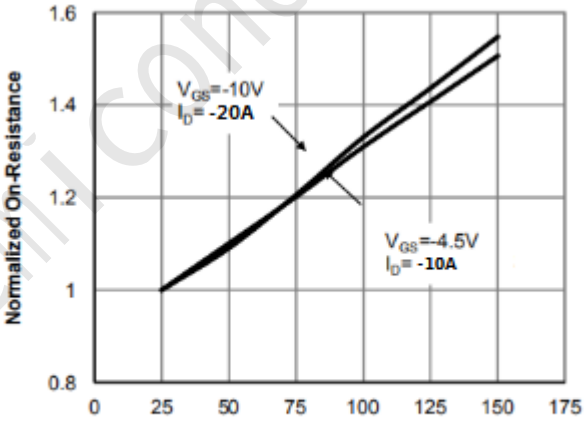


Figure 4: On-Resistance vs. Junction Temperature

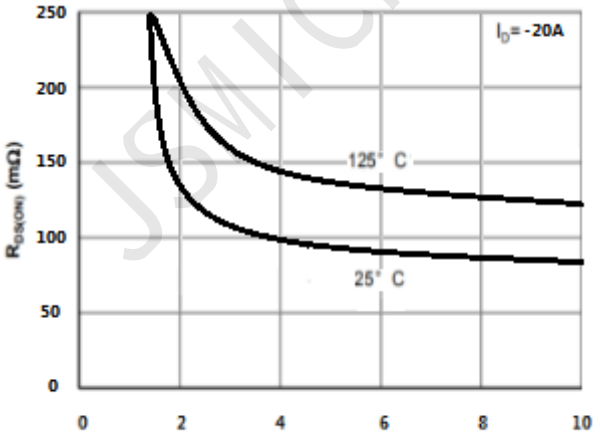


Figure 5: On-Resistance vs. Gate-Source Voltage

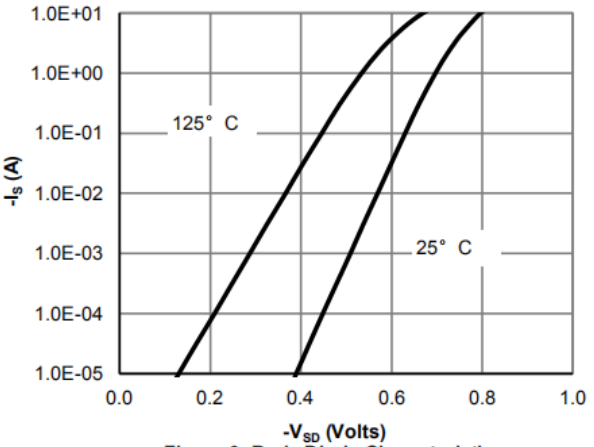


Figure 6: Body-Diode Characteristics

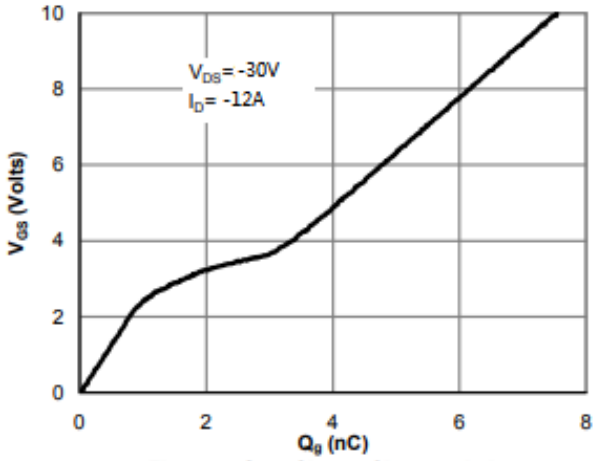


Figure 7: Gate-Charge Characteristics

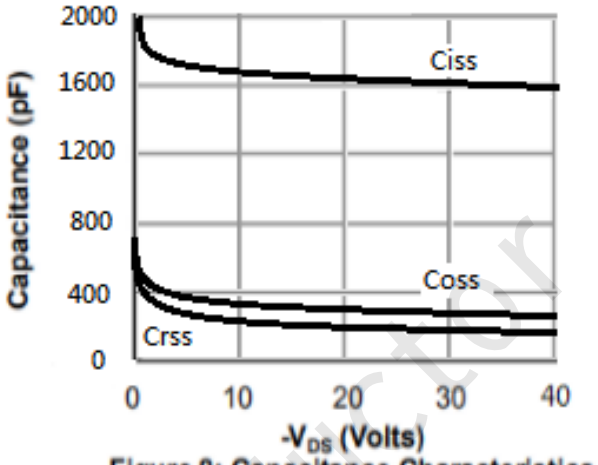


Figure 8: Capacitance Characteristics

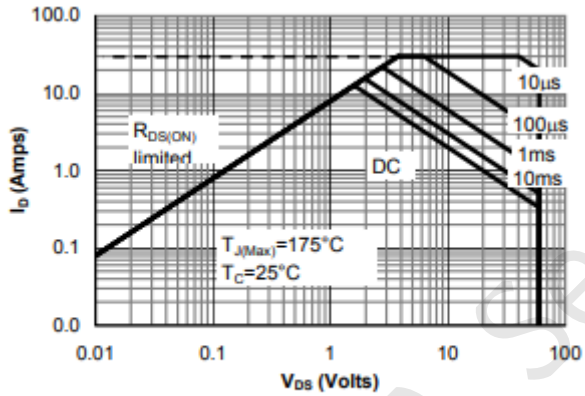


Figure 9: Maximum Forward Biased Safe Operating Area

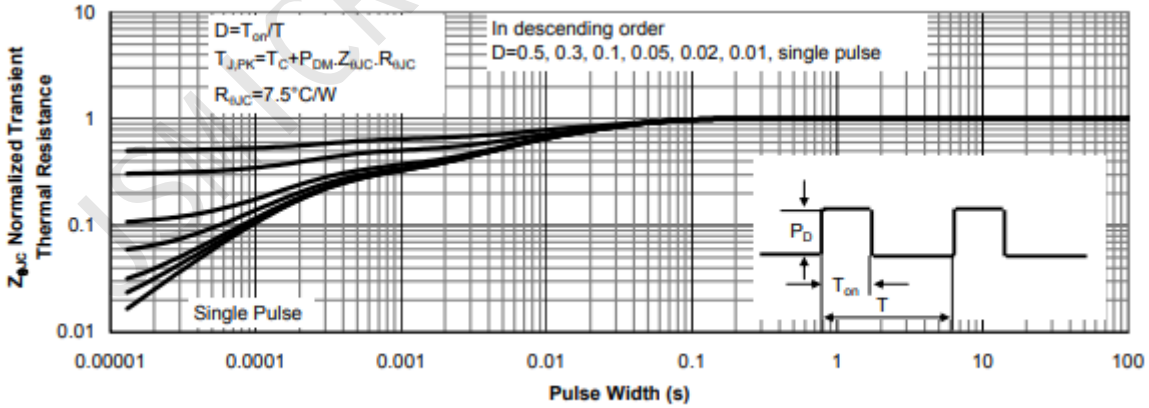
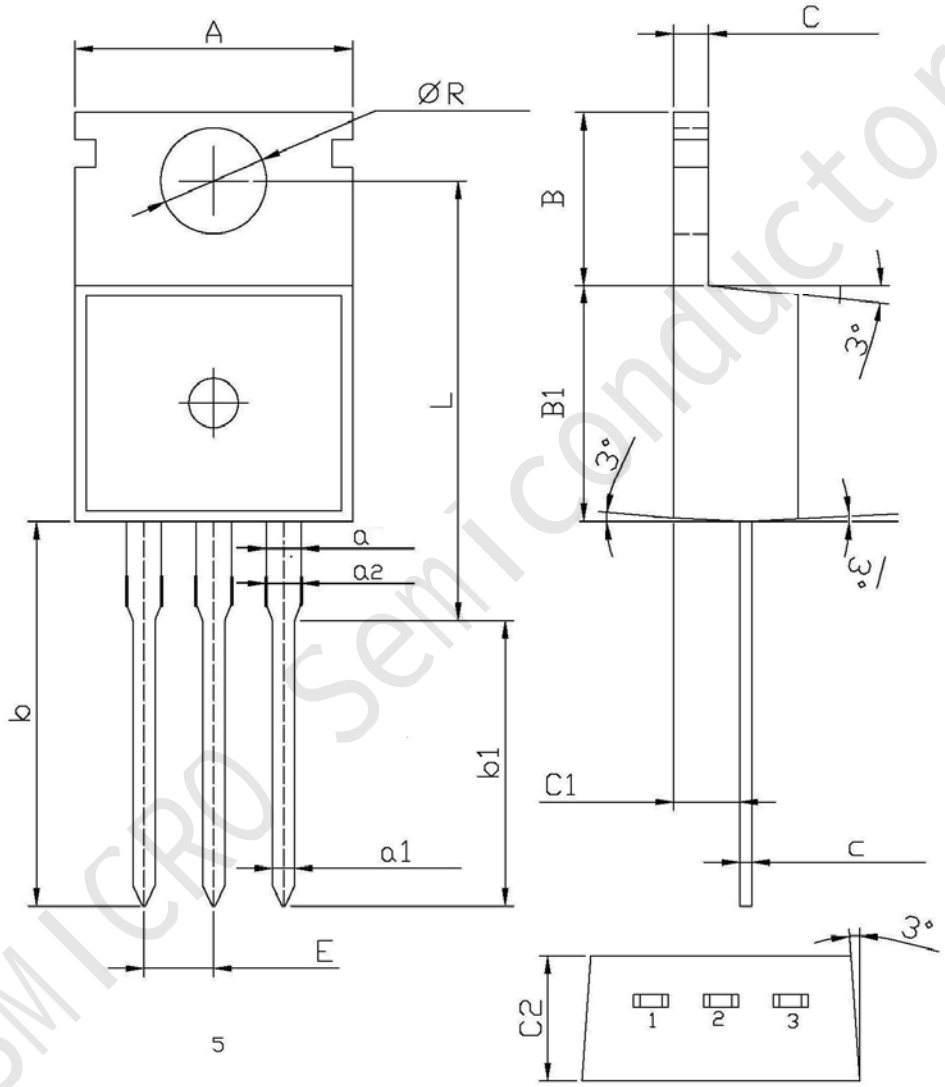


Figure 10 : Normalized Maximum Transient Thermal Impedance

外形尺寸图 / Package Dimensions

TO-220 单位：mm



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	9.8	10.2	C	1.2	1.4
R	3.56	3.64	B	6.3	6.7
L	15.7	16.1	B1	9.0	9.4
b	12.6	13.6	C1	2.2	2.6
b1	9.6	10.6	a1	0.7	0.9
a	1.22	1.32	c	0.4	0.6
E	2.34	2.74	C2	4.3	4.7
a2	1.25	1.45			