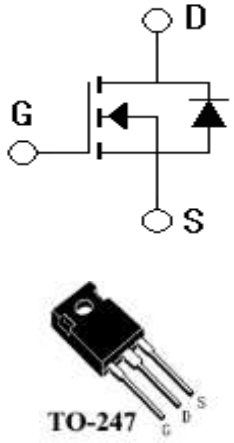
MS65R016AR

主要参数 MAIN CHARACTERISTICS

I_D	120A
V_{DSS}	650 V
Rdson-max （@Vgs=10V）	15.5 mΩ
Qg-typ	320 nC

封装 **Package**



用途

- 高频开关电源
- 电子镇流器
- LED 电源

APPLICATIONS

- High frequency switching mode power supply
- Electronic ballast
- LED power supply

产品特性

- 低栅极电荷
- 开关速度快
- 产品全部经过雪崩测试
- 高抗 dv/dt 能力
- RoHS 产品
- 超结产品

FEATURES

- Low gate charge
- Fast switching
- 100% avalanche tested
- Improved dv/dt capability
- RoHS product
- Super Junction MOS

订货信息 ORDER MESSAGE

订 货 型 号 Order codes				印 记 Marking	封 装 Package
有卤-条管	无卤-条管	有卤-编带	无卤-编带		
Halogen-Tube	**Halogen-Free-Tube**	**Halogen-reel**	**Halogen-Free-Reel**		
MS65R016AR-GE-B	MS65R016AR-GE-BR	N/A	N/A	MS65R016AR	TO-247

绝对最大额定值 ABSOLUTE RATINGS (Tc=25℃)

项 目 Parameter	符 号 Symbol	数 值 Value	单 位 Unit
最高漏极－源极直流电压 Drain-Source Voltage	V_{DSS}	650	V
连续漏极电流（注 1） Drain Current -continuous	I_D T=25℃	120*	A
	T=100℃	70*	A
最大脉冲漏极电流（注 2） Drain Current - pulse （note 2）	I_{DM}	450*	A
最高栅源电压 Gate-Source Voltage	V_{GSS}	±20	V
单脉冲雪崩能量（注 3） Single Pulsed Avalanche Energy（note 3）	E_{AS}	810	mJ
耗散功率 Power Dissipation	P_D T_C=25℃	400	W
	-Derate above 25℃	3.2	W/℃
最高结温及存储温度 Operating and Storage Temperature Range	T_J，T_{STG}	-55～+150	℃

电特性 ELECTRICAL CHARACTERISTICS

项　　目 Parameter	符　号 Symbol	测试条件 Tests conditions	最小 Min	典型 Typ	最 大 Max	单 位 Units
关态特性 Off –Characteristics						
漏－源击穿电压 Drain-Source Voltage	BV_{DSS}	I_D=250μA, V_{GS}=0V	650	-	-	V
零栅压下漏极漏电流 Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=650V,V_{GS}=0V, T_C=25℃	-	-	10	μA
正向栅极体漏电流 Gate-body leakage current, forward	I_{GSSF}	V_{DS}=0V, V_{GS} =20V	-	-	100	nA
反向栅极体漏电流 Gate-body leakage current, reverse	I_{GSSR}	V_{DS}=0V, V_{GS} =-20V	-	-	-100	nA
通态特性 On-Characteristics						
阈值电压 Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}， I_D=250μA	3.0	3.5	4	V
静态导通电阻 Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS} =10V， I_D=50A	-	13.5	15.5	mΩ
动态特性 Dynamic Characteristics						
输入电容 Input capacitance	C_{iss}	V_{DS}=50V, V_{GS} =0V, f=1.0MH$_Z$	-	9330	-	pF
输出电容 Output capacitance	C_{oss}		-	403	-	pF
反向传输电容 Reverse transfer capacitance	C_{rss}		-	31	-	pF

电特性 ELECTRICAL CHARACTERISTICS

开关特性 Switching Characteristics						
延迟时间 Turn-On delay time	$t_d(on)$	V_{DD}=400V,I_D=50A,R_G=5Ω, VGS=10V	-	121	-	ns
上升时间 Turn-On rise time	t_r		-	20	-	ns
延迟时间 Turn-Off delay time	$t_d(off)$		-	227	-	ns
下降时间 Turn-Off Fall time	t_f		-	14	-	ns
栅极电荷总量 Total Gate Charge	Q_g	V_{DS} =400V , I_D=50A V_{GS} =0to10V	-	320	-	nC
栅－源电荷 Gate-Source charge	Q_{gs}		-	125	-	nC
栅－漏电荷 Gate-Drain charge	Q_{gd}		-	145	-	nC
漏－源二极管特性及最大额定值 **Drain-Source Diode Characteristics and Maximum Ratings**						
正向最大连续电流 Maximum Continuous Drain -Source Diode Forward Current	I_S		-	-	120	A
正向最大脉冲电流 Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}		-	-	450	A
正向压降 Drain-Source Diode Forward Voltage	V_{SD}	V_{GS}=0V, I_S=50A	-	-	1.2	V
反向恢复时间 Reverse recovery time	t_{rr}	V_r=400V, I_F= I_S dI_F/dt=100A/μs	-	177	-	ns
反向恢复电荷 Reverse recovery charge	Q_{rr}		-	1.7	-	μC
反向恢复电流 Peak reverse recovery current	Irrm			16		A

热特性 THERMAL CHARACTERISTIC

项 目 **Parameter**	符 号 **Symbol**	最大 **Max** MS65R016AR_TO-247	单 位 **Unit**
结到管壳的热阻 Thermal Resistance, Junction to Case	Rth(j-c)	0.31	℃/W
结到环境的热阻 Thermal Resistance, Junction to Ambient	$R_{th(j-A)}$	60	℃/W

注释：

1：最大漏电流额定值由结温度限制-

2：脉冲宽度由最高结温限制

3：L = 50mH, VDD = 50V, RG = 25Ω, VG=10V, Starting TJ = 25°C

Notes:

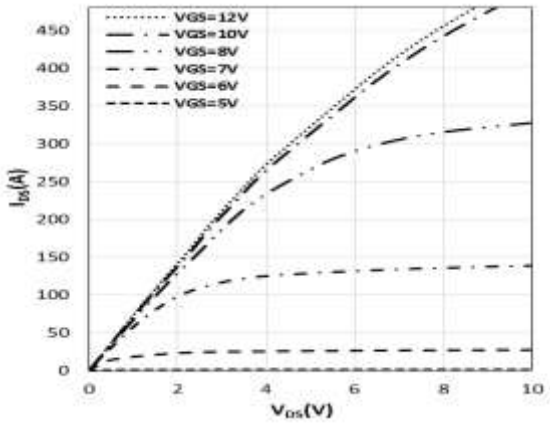
1：The max drain current rating is junction temperature limited

2：Repetitive Rating: Pulse width limited by maximum junction temperature

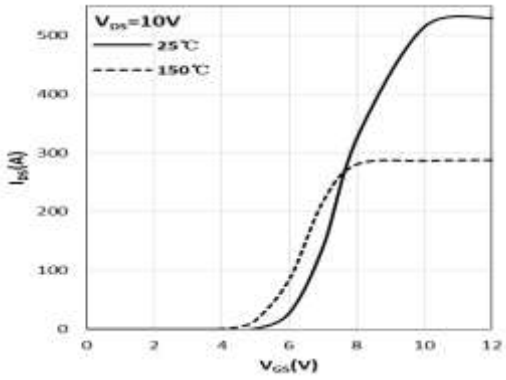
3：L = 50mH, VDD = 50V, RG = 25Ω, VG=10V, Starting TJ = 25°C

特征曲线 ELECTRICAL CHARACTERISTICS (curves)

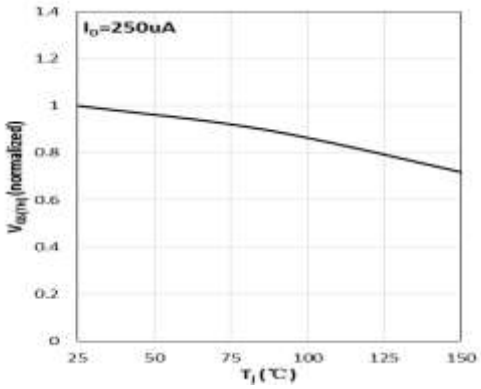
On-Region Characteristics



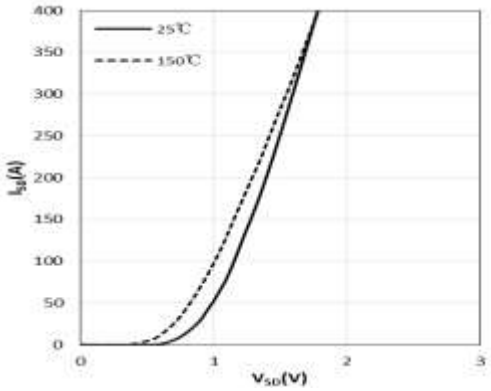
Transfer Characteristics



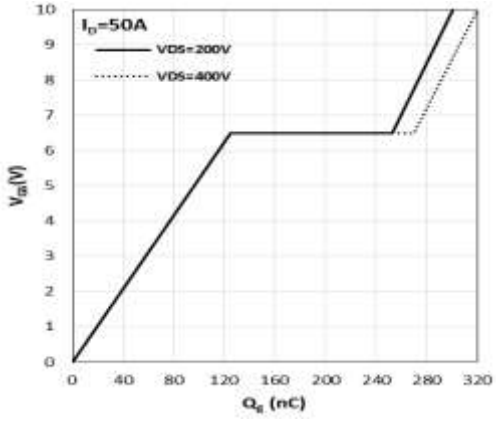
Threshold Voltage vs Temperature Characteristic



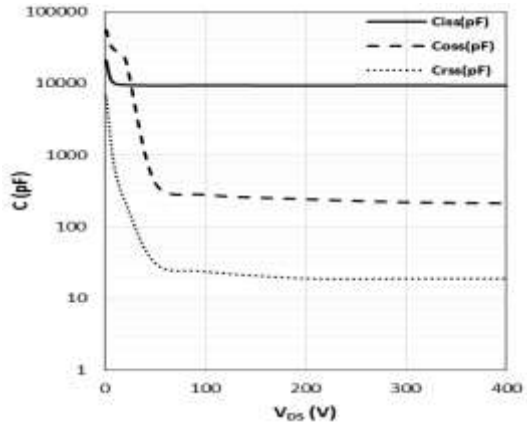
Body Diode Forward Voltage Variation vs. Source Current and Temperature



Gate Charge Characteristics

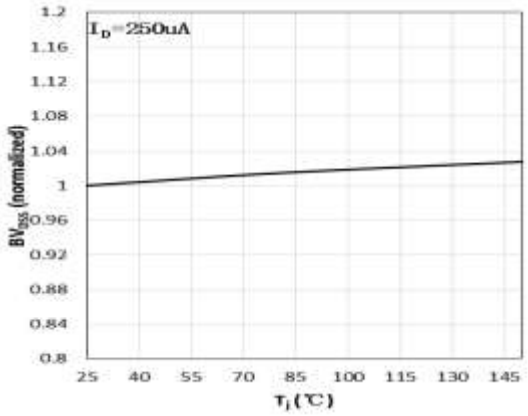


Capacitance Characteristics

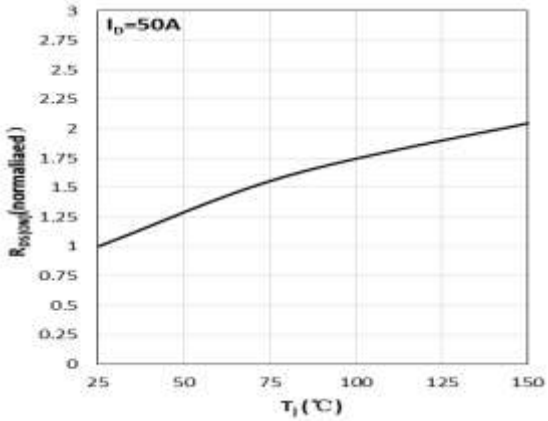


特征曲线 ELECTRICAL CHARACTERISTICS (curves)

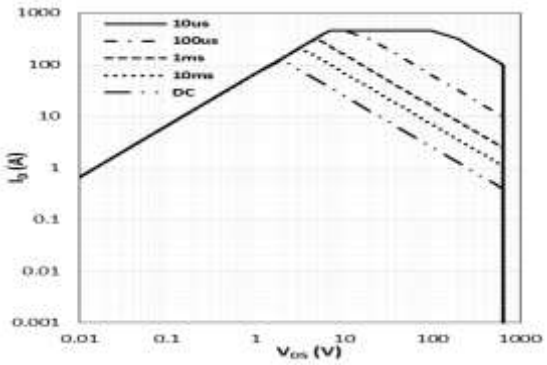
Breakdown Voltage Variation vs. Temperature



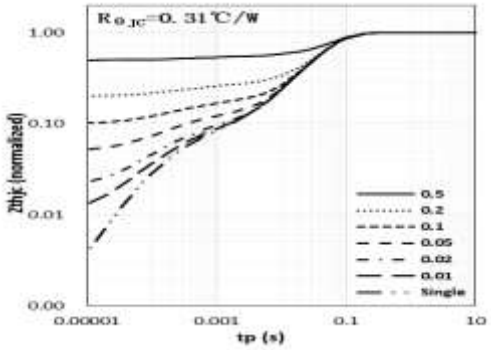
On-Resistance Variation vs. Temperature



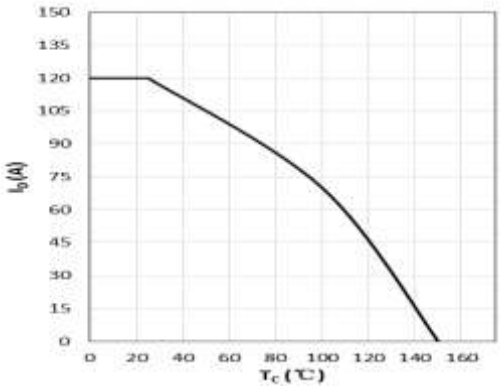
Maximum Safe Operating Area For MS65R016AR/ TO-247



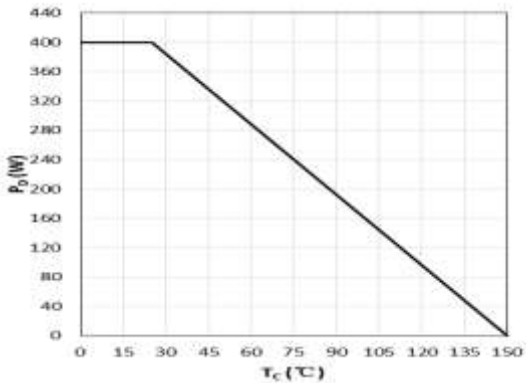
Transient Thermal Response Curve For MS65R016AR/ TO-247



Maximum Drain Current vs. Case Temperature



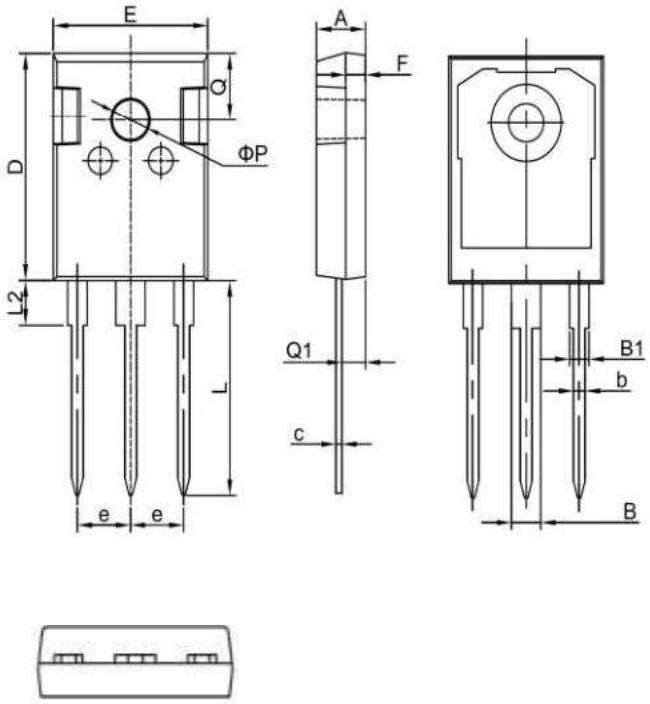
Power Disspation vs. Temperature



外形尺寸 **PACKAGE MECHANICAL DATA**

TO-247

单位 Unit：mm



符号 symbol	MIN	MAX
A	4.90	5.10
B	2.95	3.35
B1	1.95	2.35
b	1.15	1.35
c	0.50	0.70
D	20.90	21.10
E	15.70	15.90
e	5.34	5.54
F	1.90	2.10
L	19.40	20.40
L2	4.03	4.23
Q	6.00	6.40
Q1	2.30	2.50
P	3.50	3.70

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