



65R280D

主要参数 MAIN CHARACTERISTICS

Id	15 A
Vdss	650 V
Rdson (Vgs=10V)	<0. 28Ω

用途

- 负载开关
- 脉宽调制
- 电源管理

APPLICATIONS

- Load Switch
- PWM Application
- Power Management

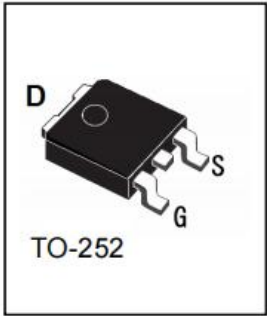
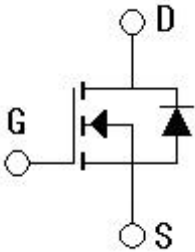
产品特性

- 先进沟槽技术
- 符合环保标准
- 产品无卤素
- 湿敏等级3级

FEATURES

- Advanced Trench Technology
- RoHS and Reach Compliant
- Halogen and Antimony Free
- Moisture Sensitivity Level 3

封装 Package



产品中有害有毒物质或元素的名称及含量

部件名称	有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六 价 铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
	≤0.1%	≤0.1%	≤0.01%	≤0.1%	≤0.1%	≤0.1%
引线框	○	○	○	○	○	○
塑封树脂	○	○	○	○	○	○
管 芯	○	○	○	○	○	○
内引线	○	○	○	○	○	○
焊 料	×	○	○	○	○	○
说 明	○: 表示该元素的含量在 SJ/T11363-2006 标准的限量要求以下。 ×: 表示该元素的含量超出 SJ/T11363-2006 标准的限量要求。 目前产品的焊料中含有铅 (Pb) 成分, 但属于欧盟 RoHS 指令豁免范围。					

绝对最大额定值 **ABSOLUTE RATINGS** ($T_c=25^{\circ}\text{C}$)

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_{DS}	650	V
连续漏极电流 Drain Current-continuous	I_D $T=25^{\circ}\text{C}$ $T=100^{\circ}\text{C}$	15 9.5	A
最大脉冲漏极电流 Drain Current – pulse ^{Note 1}	I_{DM}	45	A
最高栅源电压 Gate-Source Voltage	V_{GSS}	± 30	V
单脉冲雪崩能量 Single Pulsed Avalanche Energy ^{Note 2}	E_{AS}	375	mJ
雪崩电流 Avalanche current, repetitive or not-repetitive (pulse width limited by T_j max)	I_{AS}	5	A
二极管电压变化率 Peak Diode Recovery dv/dt ^{Note 3}	dv/dt	15	V/ns
漏极-源极电压变化率 Drain Source voltage slope ($V_{ds}=480\text{V}$)	dV_{ds}/dt	50	V/ns
耗散功率 Power Dissipation	P_D $T_c=25^{\circ}\text{C}$	120	W
最高结温及存储温度 Operating and Storage Temperature Range	T_J, T_{STG}	$-55\sim+150$	$^{\circ}\text{C}$

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, T _J =25°C	650	-	-	V
		I _D =250μA, V _{GS} =0V, T _J =150°C	700	-	-	V
雪崩击穿电压温度变化率 Breakdown Voltage Temperature Coefficient	ΔBV _{DSS} /ΔT _J	I _D = 250μA, Referenced to 25°C	-	0.6	-	V/°C
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°C	-	-	1	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	2.0	3.0	4.0	V
静态导通电阻 Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =7.5A	-	0.24	0.28	Ω
动态特性 Dynamic Characteristics						
输入电容 Input capacitance	C _{iss}	V _{DS} =100V, V _{GS} =0V, f=1.0MHz	-	1050	-	pF
输出电容 Output capacitance	C _{oss}		-	41	-	pF
反向传输电容 Reverse transfer capacitance	C _{rss}		-	2.1	-	pF

电特性 ELECTRICAL CHARACTERISTICS

开关特性 Switching Characteristics							
延迟时间 Turn-On delay time	$t_{d(on)}$	$V_{DD}=400V, I_D=7.5A, R_G=15\Omega$ $V_{GS}=10V$	-	17	-	ns	
上升时间 Turn-On rise time	t_r		-	18	-	ns	
延迟时间 Turn-Off delay time	$t_{d(off)}$		-	89	-	ns	
下降时间 Turn-Off Fall time	t_f		-	20	-	ns	
栅极电荷总量 Total Gate Charge	Q_g	$V_{DS}=400V$, $I_D=7.5A$ $V_{GS}=10V$	-	25	-	nC	
栅-源电荷 Gate-Source charge	Q_{gs}		-	5.2	-	nC	
栅-漏电荷 Gate-Drain charge	Q_{gd}		-	9.3	-	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		-	-	15	A	
正向压降 Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V$, $I_S=15A$	-	0.9	1.4	V	
反向恢复时间 Reverse Recovery Time	T_{RR}	$V_{GS}=0V, V_{DS}=400V$, $I_S=7.5A, di_F/dt=100A/\mu s$	-	285	-	ns	
反向恢复电荷 Reverse Recovery Charge	Q_{RR}		-	3.1	-	μC	
反向恢复电流 Peak Reverse Recovery Current	I_{RR}		-	22	-	A	

热特性 THERMAL CHARACTERISTIC

项 目 Parameter	符号 Symbol	值 Value	单位 Unit
结到管壳的热阻 Thermal Resistance, Junction to Case	$R_{th(j-c)}$	1	$^{\circ}C/W$
管壳到散热器的热阻 Thermal Resistance, Case-to-Sink Typ	$R_{th(c-s)}$	0.5	$^{\circ}C/W$
结到环境的热阻 Thermal Resistance, Junction-to- Ambient	$R_{th(j-A)}$	62	$^{\circ}C/W$

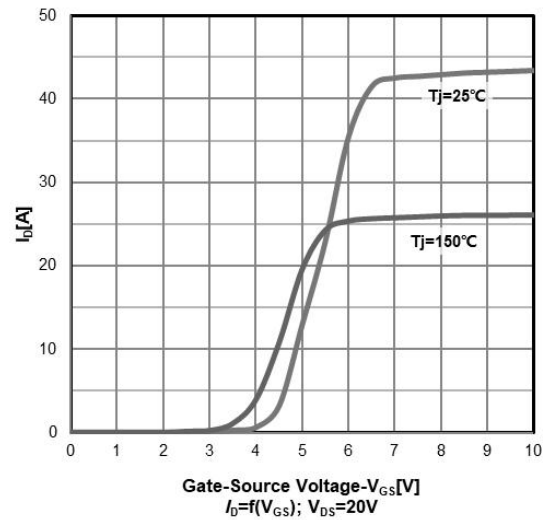
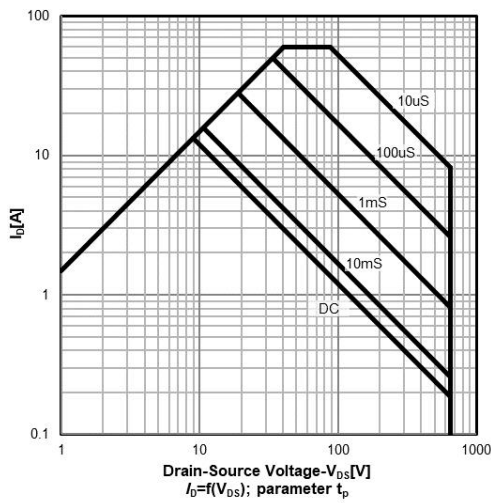
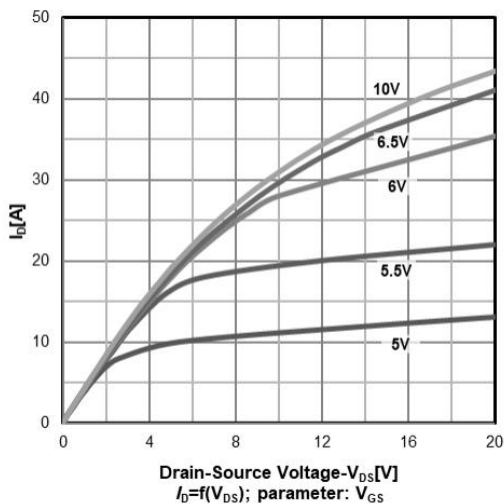
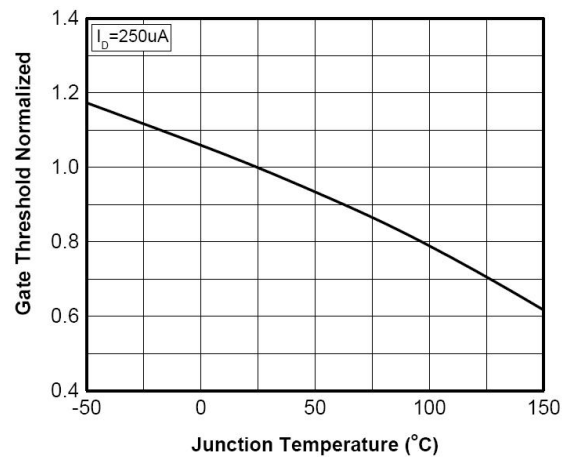
NOTES:

1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. $I_D=I_{AS}, V_{DD}=50V, L=30mH$, Starting $T_J=25^{\circ}C$
3. $I_{SD}\leq I_D, di/dt\leq 200A/\mu s, V_{DD}\leq BVDSS$, Starting $T_J=25^{\circ}C$

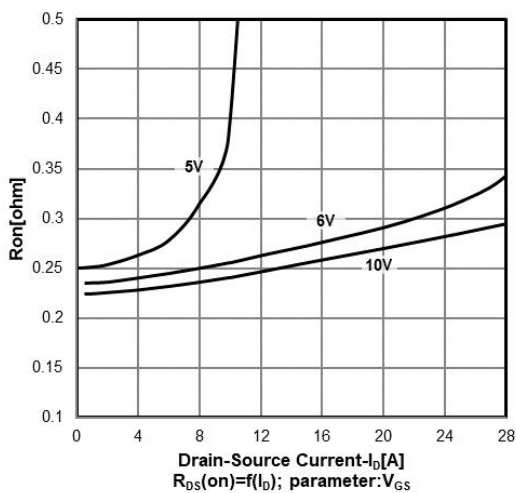
特征曲线 **ELECTRICAL CHARACTERISTICS**

Safe operating area $T_C=25\text{ }^{\circ}\text{C}$
Non FullPAK

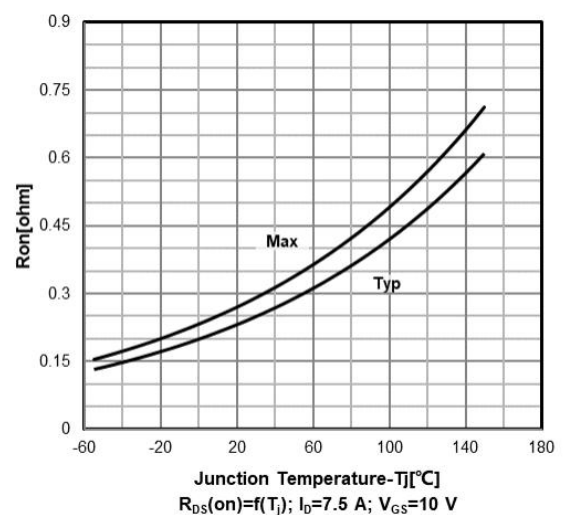
Typ. transfer characteristics

Typ. output characteristics $T_j=25\text{ }^{\circ}\text{C}$ Normalized $V_{GS(th)}$ characteristics

Typ. drain-source on-state resistance

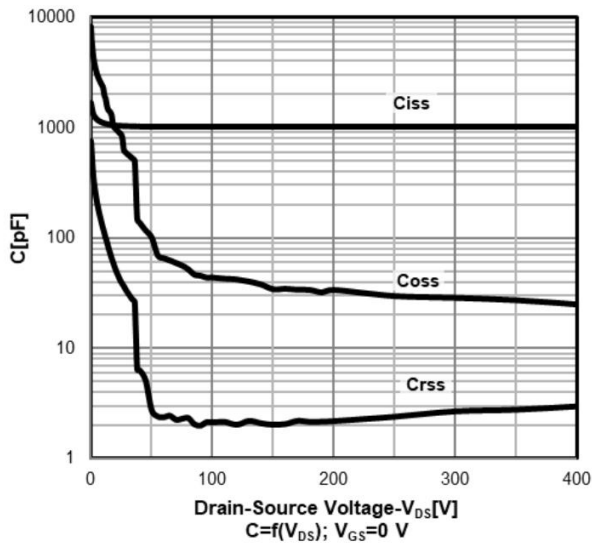


Normalized on resistance vs temperature

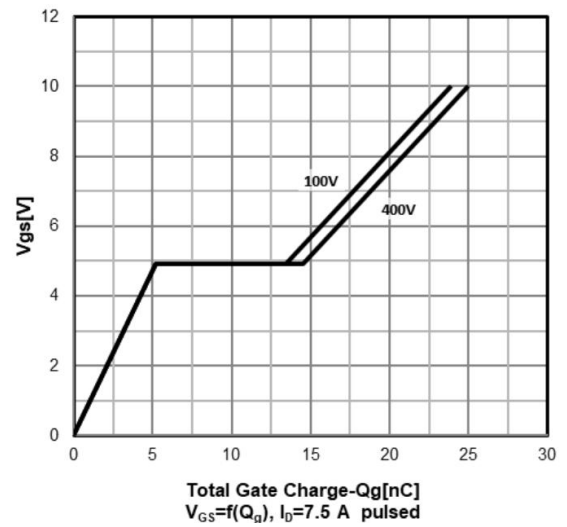


特征曲线 ELECTRICAL CHARACTERISTICS

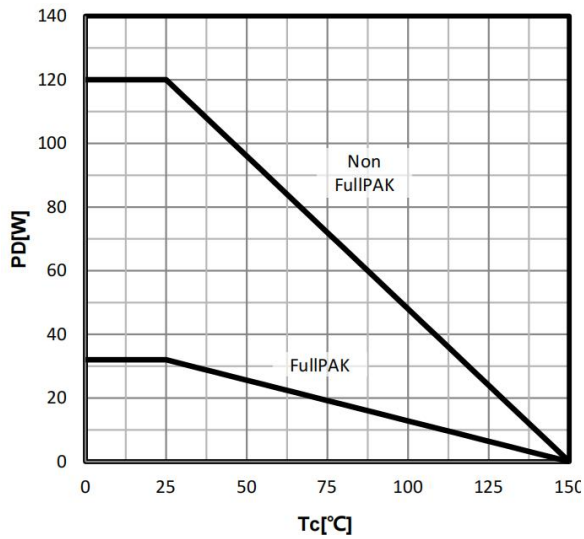
Typ. capacitances



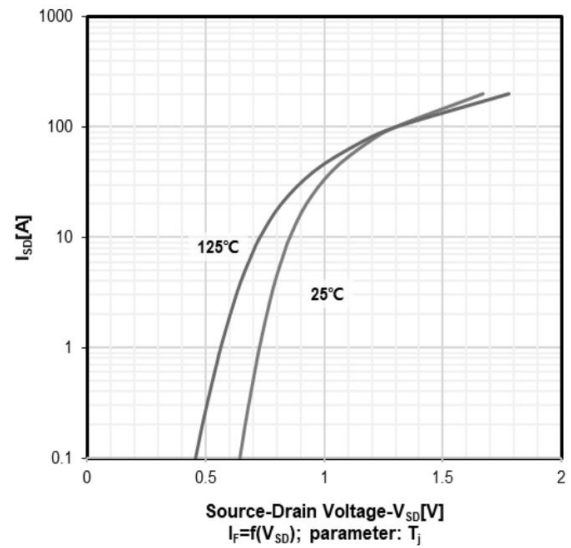
Typ. gate charge characteristics



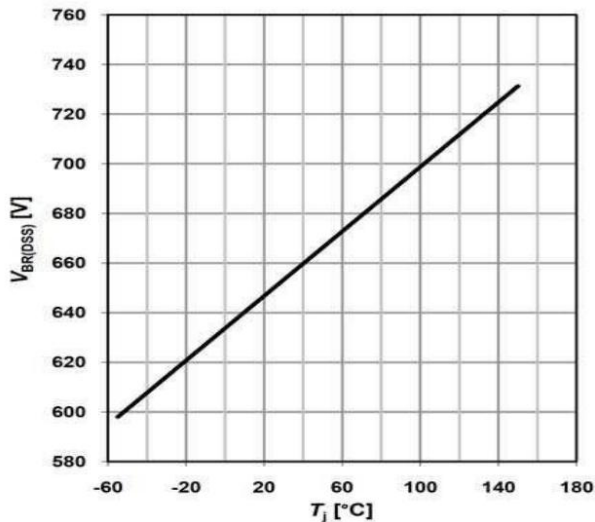
Power dissipation



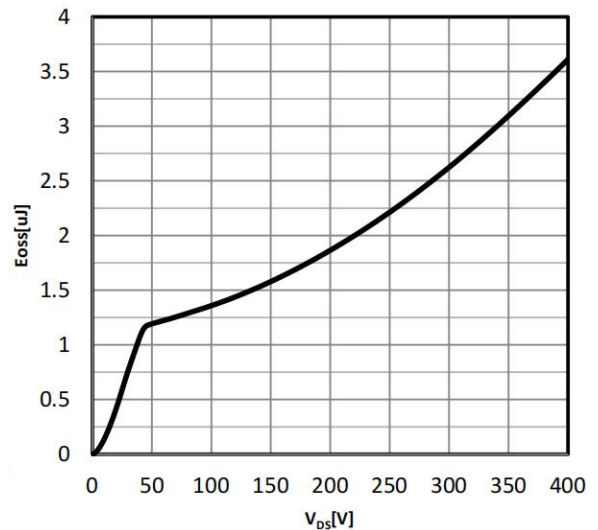
Forward characteristics of reverse diode



Drain-source breakdown voltage



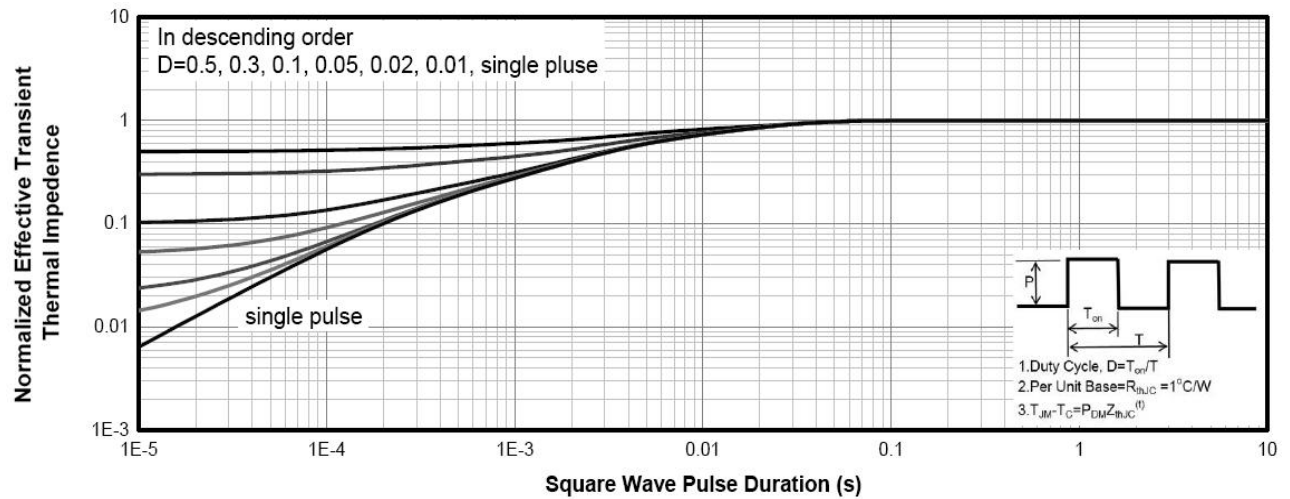
Typ. Coss stored energy



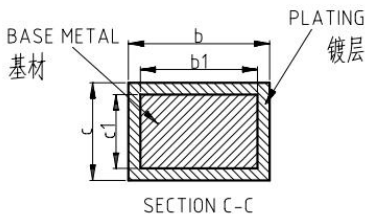
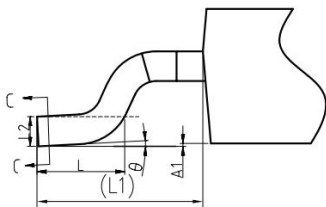
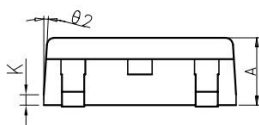
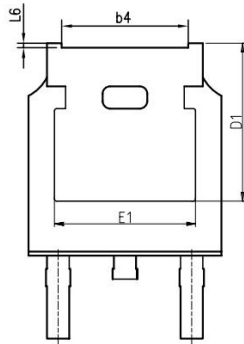
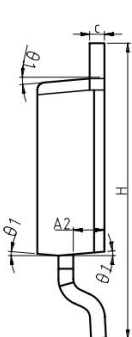
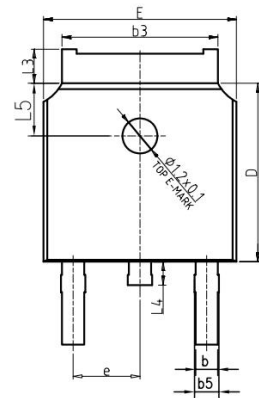
特征曲线 **ELECTRICAL CHARACTERISTICS**

Max. transient thermal impedance

Non FullPAK



外形尺寸 PACKAGE MECHANICAL DATA
TO-252



SYMBOL	mm		
	MIN	NOM	MAX
*A	2.20	2.30	2.38
*A1	0.00	-	0.10
A2	0.97	1.07	1.17
*b	0.72	0.78	0.85
b1	0.71	0.76	0.81
*b3	5.23	5.33	5.46
b4	4.27	4.32	4.37
b5	0.72	0.88	0.93
*c	0.47	0.53	0.58
c1	0.46	0.51	0.56
*D	6.00	6.10	6.20
D1	5.30REF		
*E	6.50	6.60	6.70
E1	4.70	4.83	4.92
*e	2.286BSC		
*H	9.90	10.10	10.30
L	1.40	1.50	1.70
L1	2.90REF		
L2	0.51BSC		
*L3	0.90	-	1.25
*L4	0.60	0.80	1.00
L5	1.70	1.80	1.90
L6	0	0.047	0.123
θ	0°	-	8°
*θ 1	5°	7°	9°
θ 2	5°	7°	9°
K	0.40REF		
带*为检验尺寸			