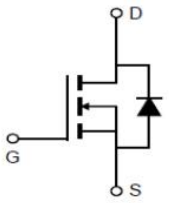
•General Description

•Features

■High Blocking Voltage

■Low Power Loss By High Speed Switching

■Low On-Resistance



V_{DS}=650V

$R_{DS(ON)}$ =0.080Ω

I_D=38A

■RoHS COMPLIANT

TO-247

•Application

■DC-DC Converter

■UPS-Micro Inverter System

■PFC Power Supply

•Ordering Information:

Part number	LHC65R080
Package	TO247
Basic ordering unit (pcs)	450
Normal Package Material Ordering Code	LHC65R080T2-TO247-TU
Halogen Free Ordering Code	LHC65R080T2-TO247-TU-HF

•Absolute Maximum Ratings（TC =25℃）

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	650	V
Continuous Drain Current	I_D T_C = 25°C	38	A
	I_D T_C = 100°C	26	
Pulsed drain current (TC = 25°C, t_p limited by T_{jmax})[1]	I_D pulse	95	A
Power Dissipation(TC=25℃)	P_D	165	W
Gate to Source Voltage(dynamic)	$V_{GS(MAX)}$	-10/+22	V
Gate to Source Voltage(static)	V_{GSOP}	-5/+18	V
Single Pulse Avalanche Energy	E_{AS}	787	mJ
Operating Junction Temperature	T_J	-55~+175	℃
Storage Temperature	T_{STG}	-55~+150	℃

●Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Drain-SourceBreakdown Voltage	B_{VDSS}	V_{GS}=0V, I_D=250uA	650	-	-	V
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}=V_{GS},I_D=1mA	1.8	-	3.8	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} =650V, V_{GS}=0V, T_J =25℃	-	-	100	uA
		T_J =175℃	-	-	100	nA
Gate- Source Leakage Current	I_{GSS}	V_{GS}=20V, V_{DS}=0V	-	-	300	nA
Drain-Source On State Resistance	$R_{DS(ON)}$	V_{GS} =15V, I_D=15A	-	0.060	0.080	Ω
Gate Resistance	R_G	V_{GS}=0V,f=1.0MHz	-	1.6	-	Ω

●Electronic Characteristics

Parameter	Symbol	Condition	Min.	Typ	Max.	Unit
Input capacitance	Ciss	V_{GS} = 0V, V_{DS} =25V F = 1MHZ	-	1080	-	pF
Output capacitance	Coss		-	98	-	
Reverse transfer capacitance	Crss		-	10	-	
Turn -Off Delay Time	Td(off)	V_{DD} =400V, I_D=15A, R_G=10Ω	-	18	-	ns
Turn-on delay time	Td(on)		-	30	-	
Rise time	Tr		-	12	-	
Fall time	Tf		-	7.1	-	
Total Gate Charge	Qg	I_D =15A, V_{DS} =400V V_{GS} =-5/15V	-	42	-	nC
Gate-to-Source Charge	Qgs		-	15	-	
Gate-to-Drain Charge	Qgd		-	12	-	
Turn On Switching Energy	E_{ON}	V_{DD} =820V, I_D=15A, R_G=10Ω	-	60.3	-	uJ
Turn Off Switching Energy	E_{OFF}		-	64	-	
Diode Forward Voltage	V_{SD}	I_D=10A V_{GS} =0V, T_J =25℃	-	3.5	-	V
		T_J =175℃	-	3.0	-	
Body Diode Reverse Recovery Time	Trr	I_D=10A, Vds=400V	-	14.2	-	ns
Body Diode Reverse Recovery Charge	Q_{rr}		-	63	-	uC
Peak Reverse Recovery Current	Irrm		-	6.0	-	A

●Thermal Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal resistance, junction - case	R_{thJC}	-	0.9	-	°C/W
Thermal resistance, junction - ambient	R_{thJA}	-	40	-	°C/W

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature

●Typical Characteristics

Figure 1. Output Characteristics

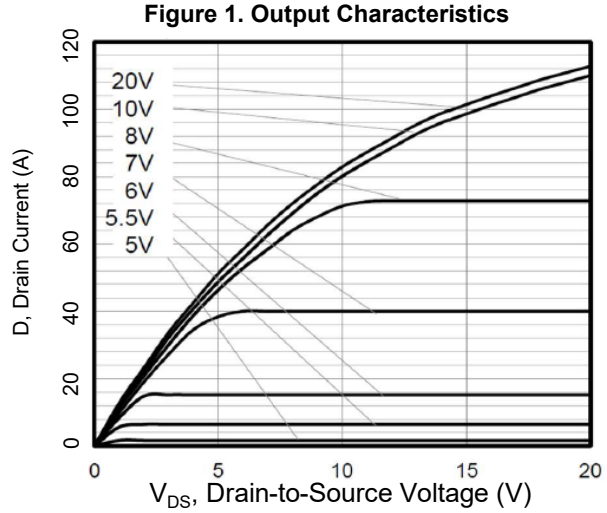


Figure 2. Transfer Characteristics

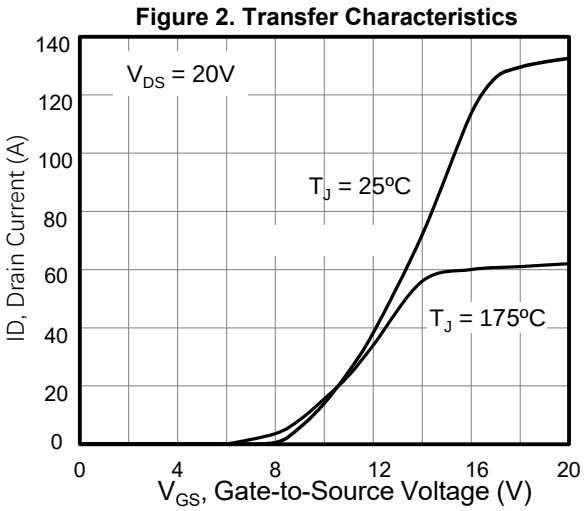


Figure 3. On-Resistance vs. Drain Current

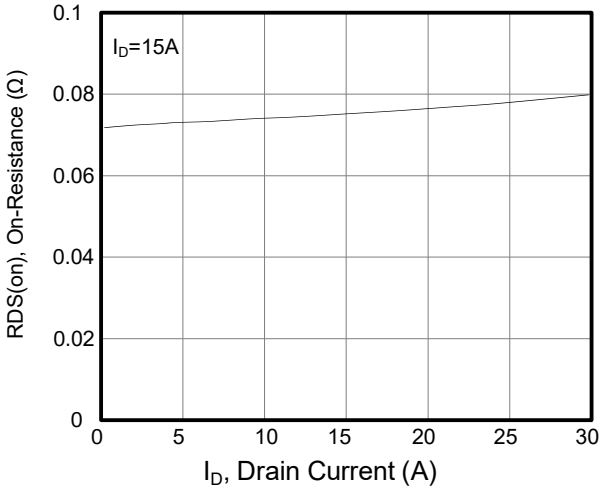


Figure 4. Capacitance

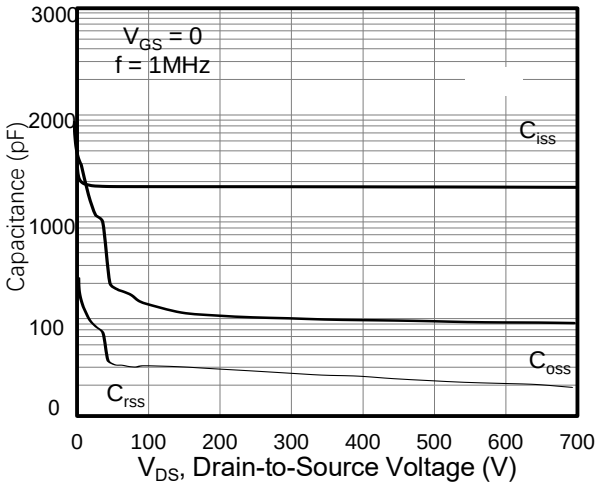


Figure 5. Gate Charge

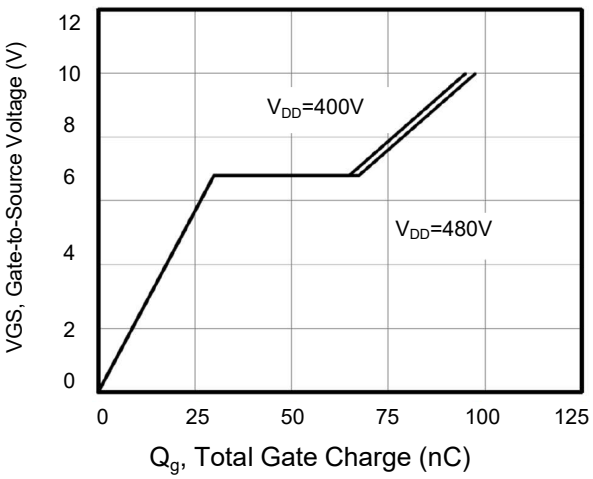
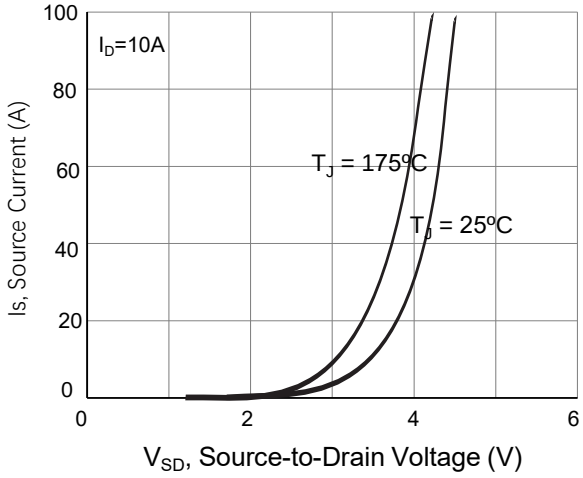


Figure 6. Body Diode Forward Voltage



Typical Characteristics (cont.)

Figure 7. Typical Capacitance Stored Energy

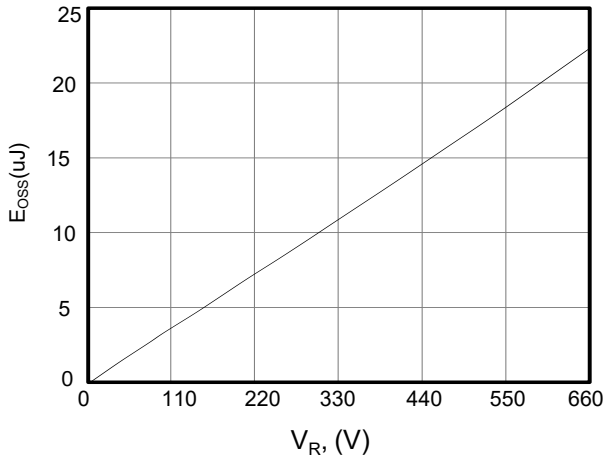


Figure 8. Power Dissipation

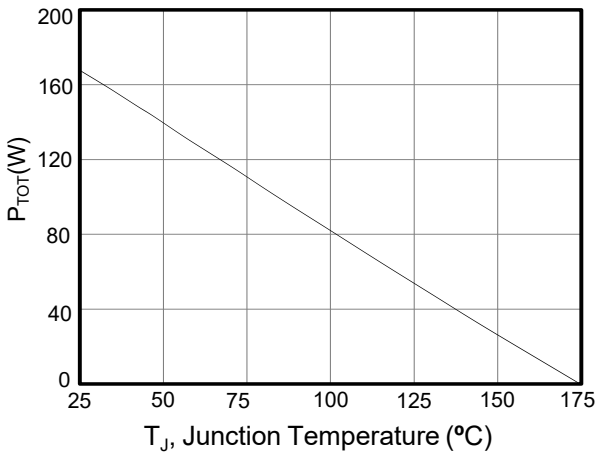


Figure 9. Transient Thermal Impedance

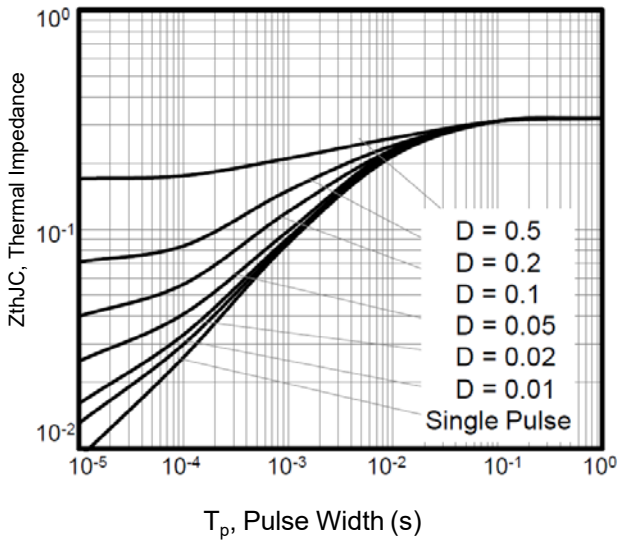
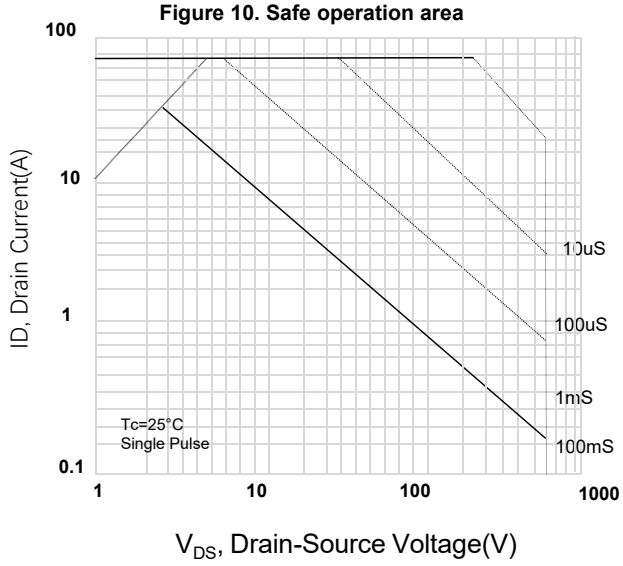


Figure 10. Safe operation area



- **Test Circuits & Waveforms**

Fig.1 Gate Charge Waveform

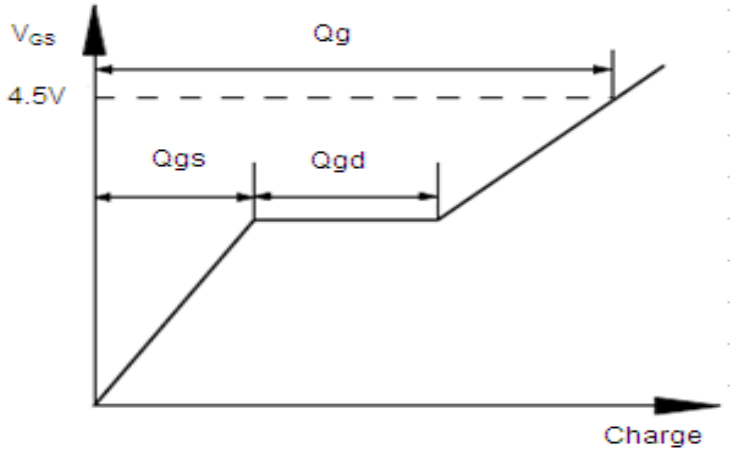


Fig.2 Switching Time Waveform

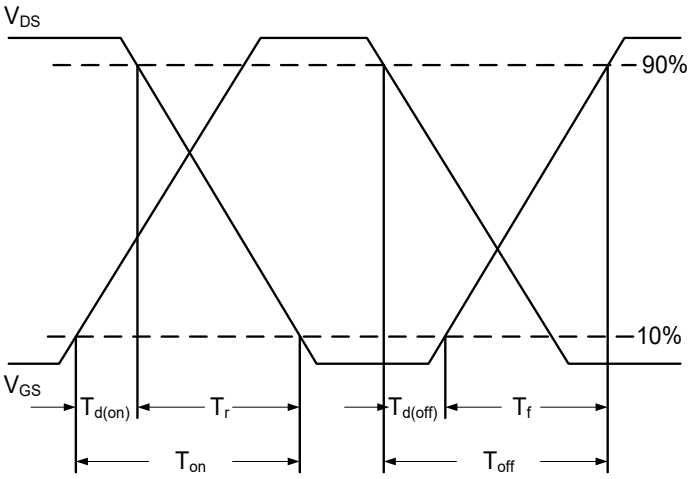
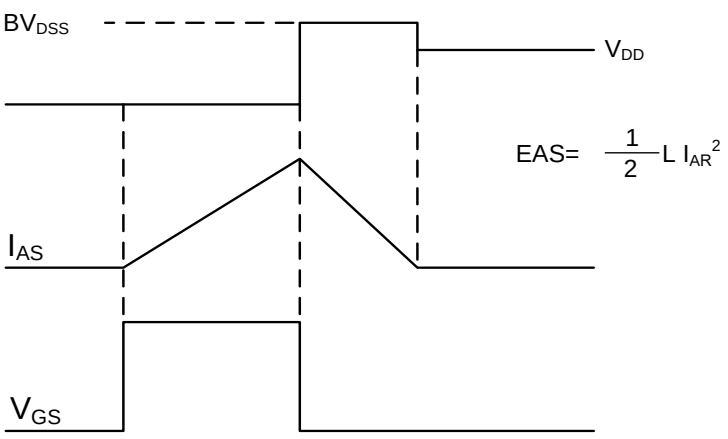


Fig.11 Unclamped Inductive Switching Waveform



●Dimensions（TO-247）

UNIT:mm

SYMBOL	min	max	SYMBOL	min	max
A	15.60	16.00	G2	1.95	2.25
B	20.80	21.20	N	5.25	5.65
C	4.85	5.15	L1	4.00	4.30
D	1.85	2.15	L	19.60	20.40
E	1.00	1.40	I	2.30	2.50
F	0.50	0.70	ΦP	3.30	3.70
G1	3.00	3.30