Features

- Split Gate Trench MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low $R_{DS(ON)}$

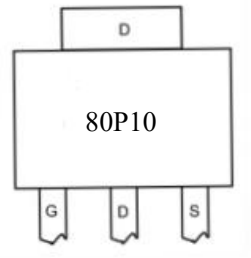
Bvdss	Rdson	ID
-100V	22mΩ	-80A

Application

RoHS

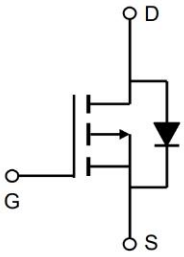
- DC-DC Converters
- Synchronous-rectification applications
- Power management functions

Package



Marking and pin assignment

TO247 top view



Schematic diagram

Package Marking and Ordering Information

Device Marking	Device	Device Package	Quantity
80P10	S80P10H	TO247	50

Absolute Maximum Ratings (T_C=25℃unless otherwise specified)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	-100	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_C=25°C	I_D	-80	A
	T_C=100°C	I_D	-41	A
Pulsed Drain Current[1]		I_{DM}	-260	A
Single Pulse Avalanche Energy		EAS	-	mJ
Power Dissipation	T_C= 25℃	P_D	250	W
Operating junction and storage temperature		T_J, T_{STG}	150, -55 ~ 150	℃
Maximum Temperature for Soldering		T_L	260	℃

Thermal Resistance Ratings

Parameter	Symbol	Value	Unit
Thermal Resistance Junction-Case	$R_{\theta JC}$	0.5	℃/W
Thermal Resistance, Junction -to-Ambient	$R_{\theta JA}$	62	℃/W

Ordering Information

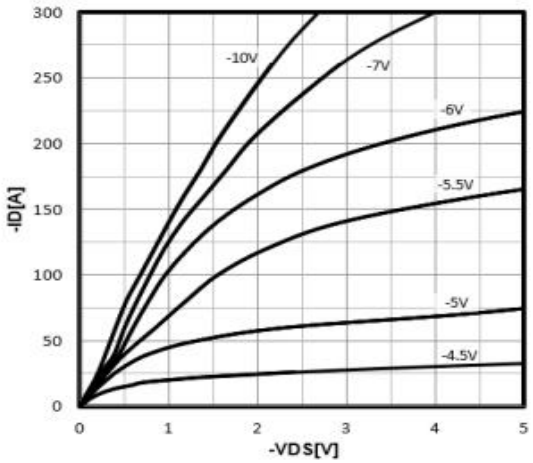
Ordering Number	Package	Pin Assignment			Packing
Halogen Free		G	D	S	
HLS80P10H	TO247	1	2	3	Tube

Electrical Characteristics (Tj=25℃ unless otherwise noted)

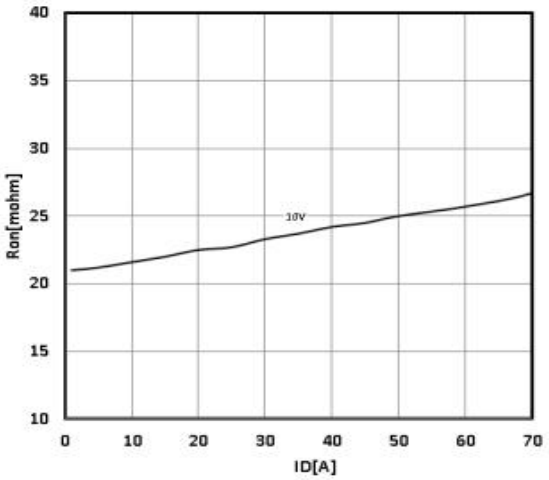
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V, I_D=-250μA	-100	-	-	V
Drain to Source Leakage Current	I_{DSS}	V_{DS}=-100V,V_{GS}=0V	-	-	1	μA
Gate to Source Forward Leakage	I_{GSS}	VGS=±20V	-	-	±100	nA
Gate-Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=-250μA	-2	-3	-4	V
Drain-Source On-Resistance	$R_{DS(on)}$	V_{GS}=-10V,I_D=-15A	-	22	25	mΩ
Input Capacitance	C_{iss}	V_{DS}=-50V,V_{GS}=0V, f =1MHz	-	4200	-	pF
Output Capacitance	C_{oss}		-	536	-	
Reverse Transfer Capacitance	C_{rss}		-	52	-	
Total Gate Charge	Q_g	V_{GS}=-10V,V_{DS}=-50V, I_D=-15A	-	76	-	nC
Gate-Source Charge	Q_{gs}		-	13	-	
Gate-Drain Charge	Q_{gd}		-	12.4	-	
Turn-On Delay Time	$t_{d(on)}$	V_{GS}=-10V, V_{DS}=-50V, R_G = 3Ω,I_D=-15A,R_L=0.75Ω	-	13	-	ns
Rise Time	t_r		-	51	-	
Turn-Off Delay Time	$t_{d(off)}$		-	177	-	
Fall Time	t_f		-	82	-	
Diode Forward Current	I_S	T_C=25℃	-	-	-80	A
Diode Forward Voltage	V_{SD}	I_S=-15A, V_{GS}=0V	-	-	-1.2	V
Reverse Recovery time	T_{rr}	I_S=-15A, V_{DD}=-50V dI/dt=100A/μs	-	110	-	ns
Reverse Recovery Charge	Q_{rr}		-	590	-	nC

Typical Performance Characteristics

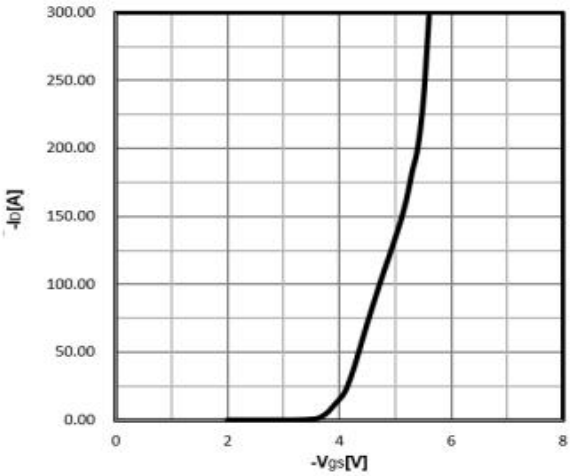
Typ. output characteristics
$I_D=f(V_{DS})$



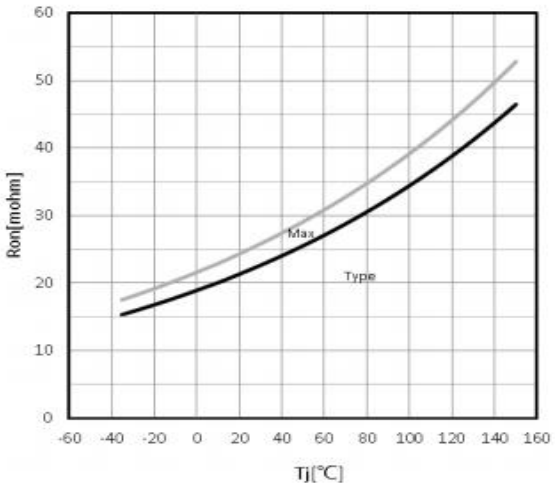
Typ. drain-source on resistance
$R_{DS(on)}=f(I_D)$



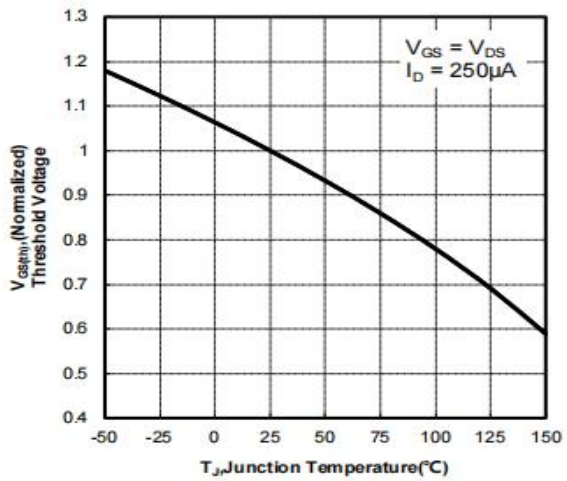
Typ. transfer characteristics
$I_D=f(V_{GS})$



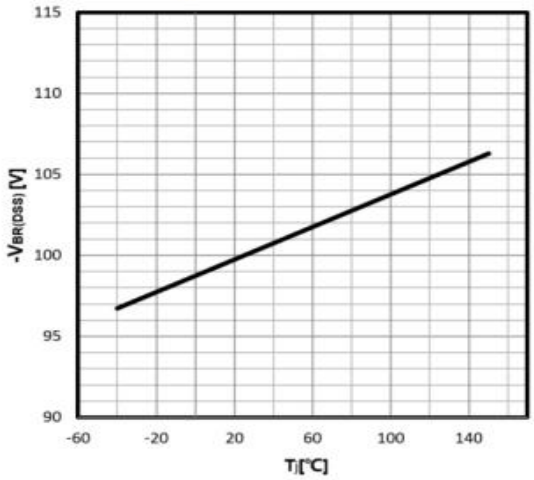
Drain-source on-state resistance
$R_{DS(on)}=f(T_j);I_D=-15A;\ V_{GS}=-10V$



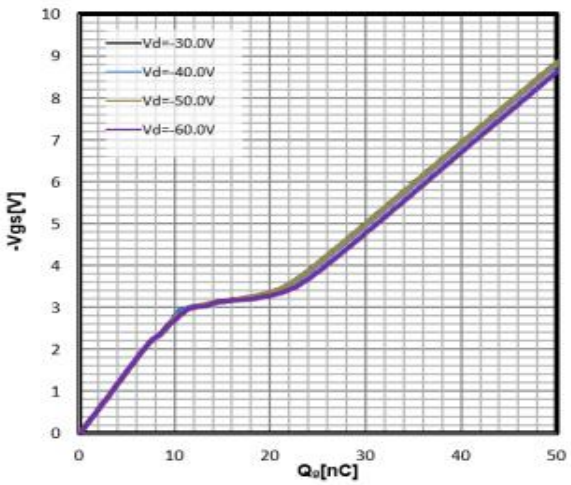
Gate Threshold Voltage
$-V_{TH}=f(T_j);\ I_D=-250uA$



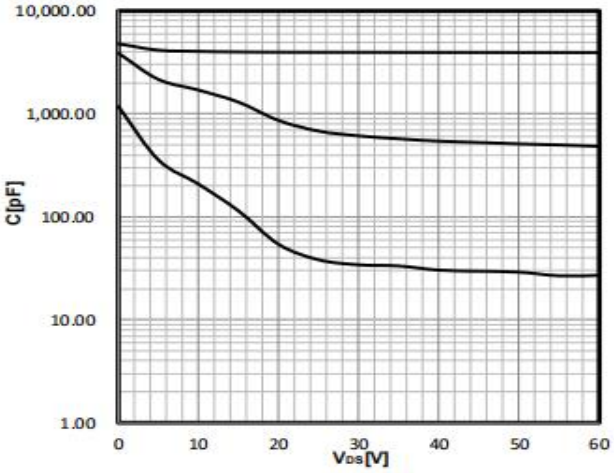
Drain-source breakdown voltage
$V_{BR(DSS)}=f(T_j);\ I_D=-250uA$



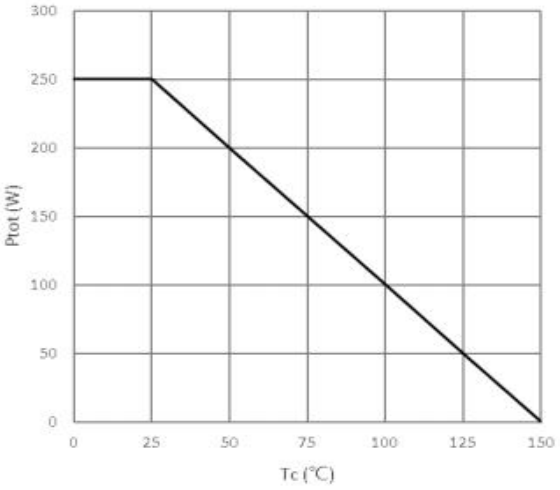
Typ. gate charge
$V_{GS}=f(Q_{gate})$; $I_D=-15A$



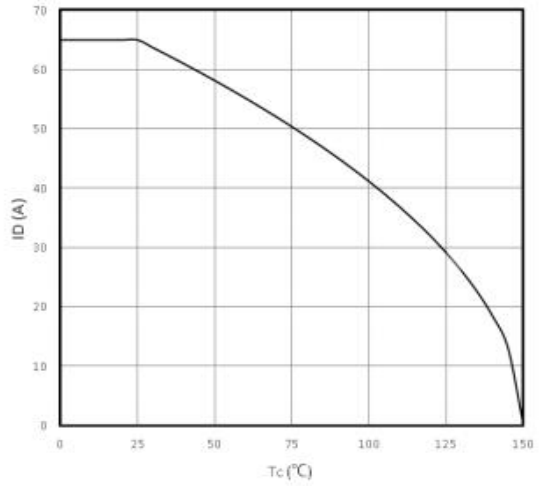
Typ. capacitances



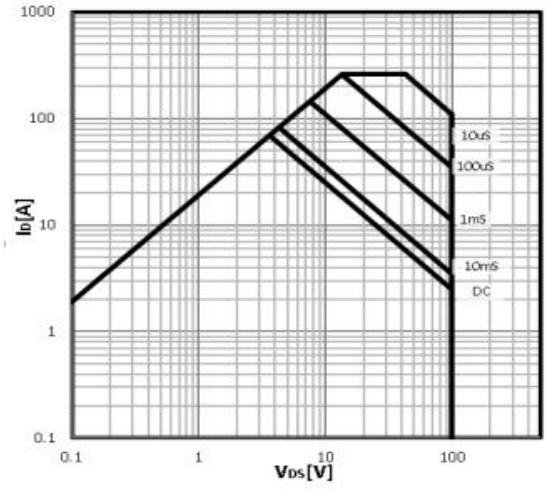
Power Dissipation
$P_{tot}=f(T_C)$



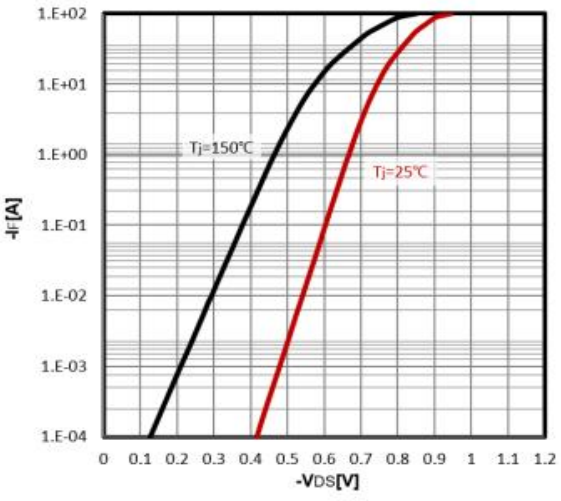
Maximum Drain Current
$-I_D=f(T_C)$



Safe operating area
$-I_D=f(-V_{DS})$

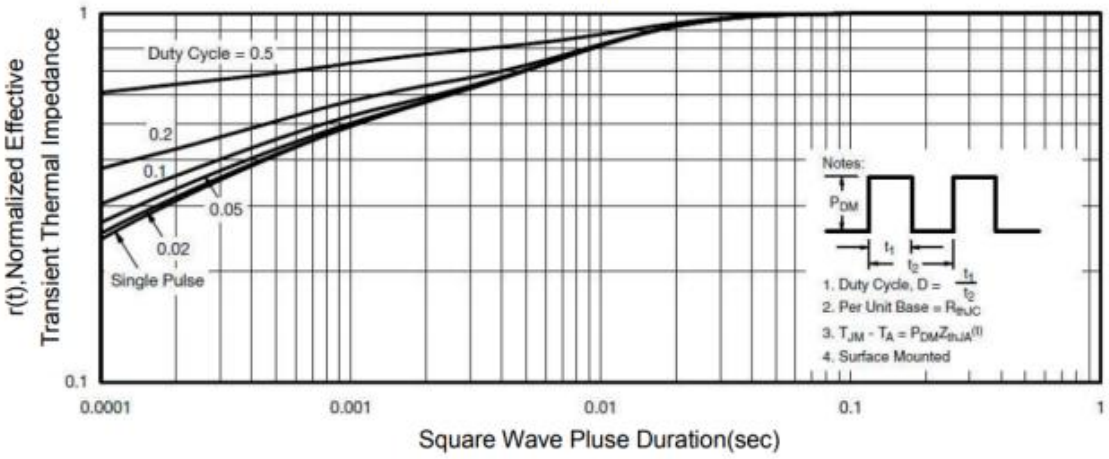


Body Diode Forward Voltage Variation
$-I_F=f(-V_{DS})$



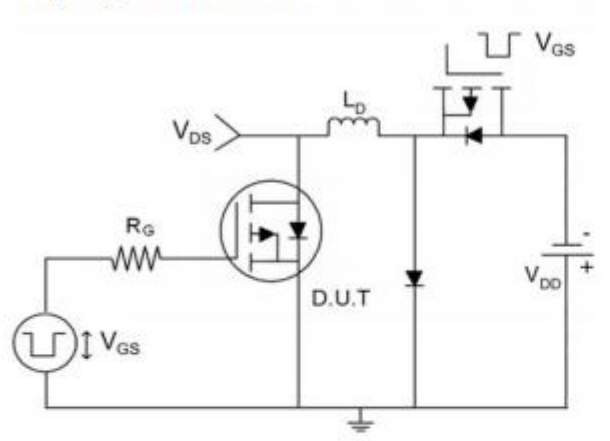
Max. transient thermal impedance

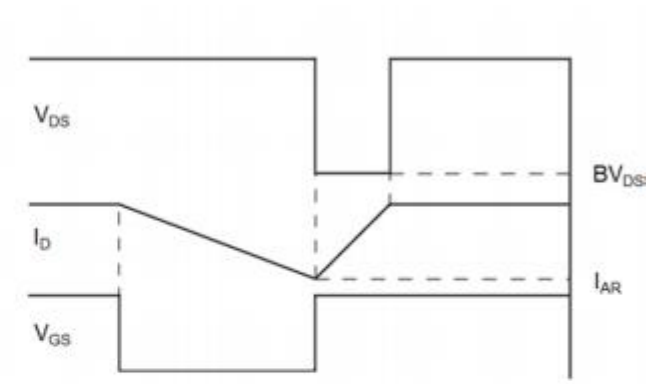
$Z_{thJC}=f(t_p)$



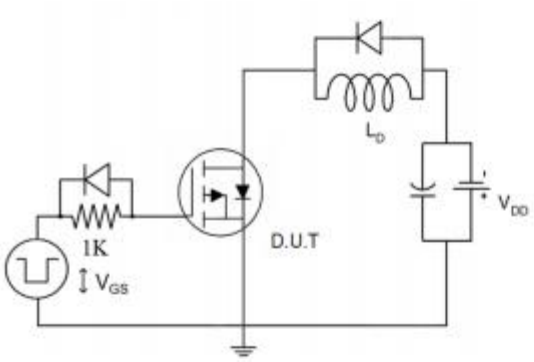
Test Circuit and Waveform

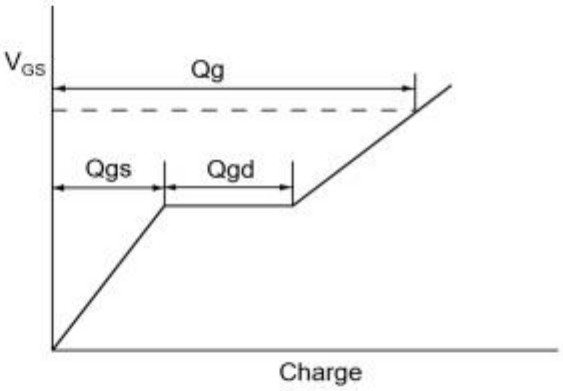
1) E_{AS} Test Circuits



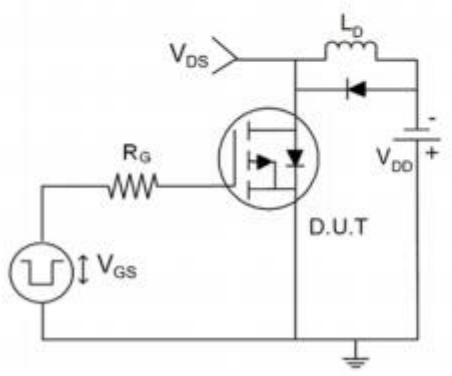


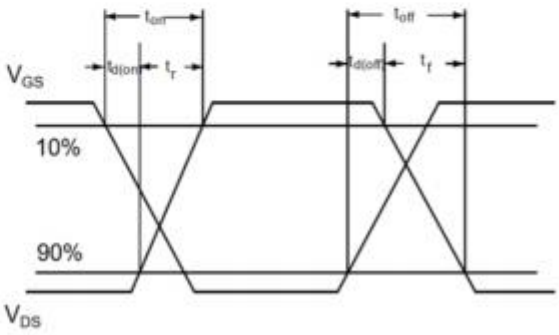
2) Gate Charge Test Circuit



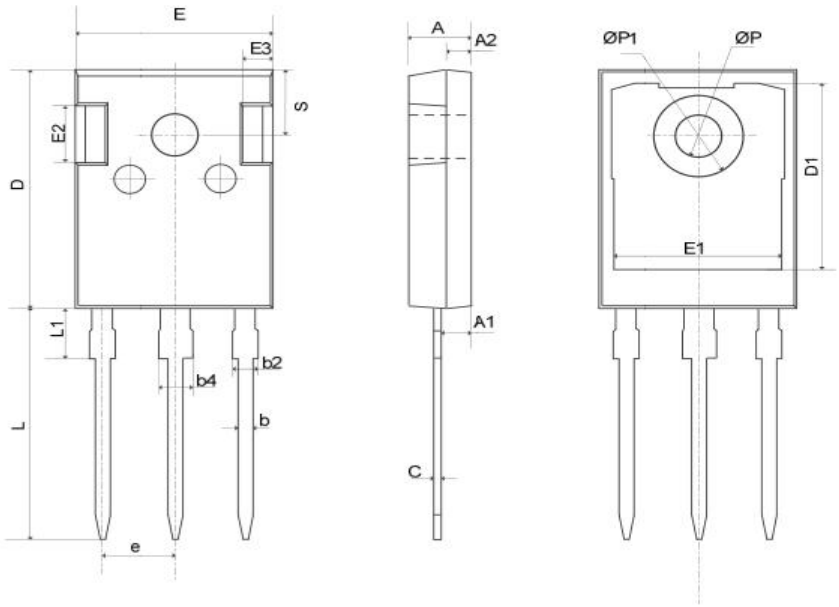


3) Switch Time Test Circuit





Package Dimensions TO247



COMMON DIMENSIONS

SYMBOL	MM	
	MIN	MAX
A	4.80	5.20
A1	2.21	2.61
A2	1.85	2.15
b	1.11	1.36
b2	1.91	2.21
b4	2.91	3.21
c	0.51	0.75
D	20.70	21.30
D1	16.25	16.85
E	15.50	16.10
E1	13.00	13.60
E2	4.80	5.20
E3	2.30	2.70
e	5.44BSC	
L	19.62	20.22
L1	—	4.30
ØP	3.40	3.80
ØP1	—	7.30
S	6.15BSC	

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