	Value	Unit
	650	V
	3.3	V
	19	A
	159	mΩ

	Marking	MSL	Form		Reel(pcs)	Per Carton (pcs)
	H65R190PF	1	Tape&Reel		3000	30000

Symbol				Unit
V_{DS}				V
V_{GS}				V
I_D	Continuous Drain Current	$T_C = 25°C$ $T_C = 100°C$		
I_{DM}				A
E_{AS}				mJ
P_D	Power Dissipation	$T_C = 25°C$ $T_C = 100°C$		
T_J, T_{STG}				°C

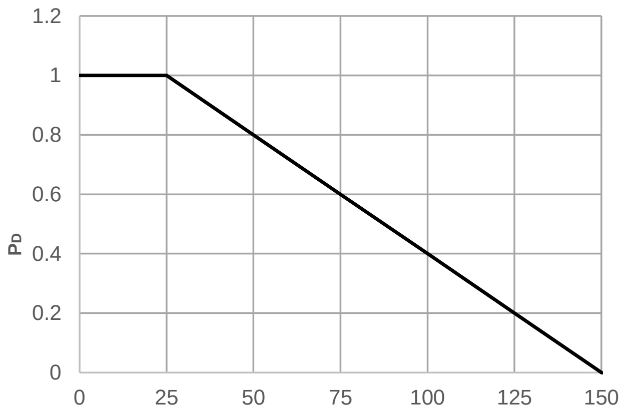
Symbol		Unit
R		°C/W
R		

Electrical Characteristics (T_J = 25°C unless otherwise specified)

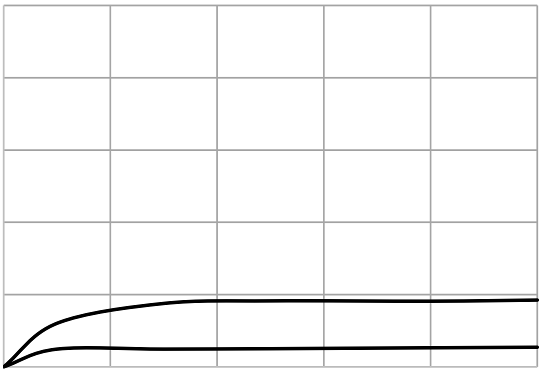
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
Off Characteristics						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$I_D = 250\mu A$, $V_{GS} = 0V$	650	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 650V$, $V_{GS} = 0V$	-	-	10.0	μA
I_{GSS}	Gate-Body Leakage Current	$V_{DS} = 0V$, $V_{GS} = \pm30V$	-	-	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$, $I_D = 250\mu A$	2.3	3.3	4.3	V
$R_{DS(ON)}$	Static Drain-Source ON-Resistance(4)	$V_{GS} = 10V$, $I_D = 10A$	-	159	190	mΩ
Dynamic Characteristics						
R_g	Gate Resistance	f = 1MHz	-	4.9	-	Ω
C_{iss}	Input Capacitance	$V_{GS} = 0V$, $V_{DS} = 325V$, f = 1MHz	1084	1517	2049	pF
C_{oss}	Output Capacitance		28	39	52	pF
C_{rss}	Reverse Transfer Capacitance		-	5.9	-	pF
Q_g	Total Gate Charge	V_{GS} = 0 to 10V $V_{DS} = 325V$, $I_D = 10A$	23	32	43	nC
Q_{gs}	Gate Source Charge		-	10	-	nC
Q_{gd}	Gate Drain("Miller") Charge		-	11	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-On DelayTime	$V_{GS} = 10V$, $V_{DD} = 310V$ $I_D = 10A$, $R_{GEN} = 24\Omega$	-	36	-	ns
t_r	Turn-On Rise Time		-	38	-	ns
$t_{d(off)}$	Turn-Off DelayTime		-	100	-	ns
t_f	Turn-Off Fall Time		-	30	-	ns
Body Diode Characteristics						
I_S	Maximum Continuous Body Diode Forward Current		-	-	19	A
I_{SM}	Maximum Pulsed Body Diode Forward Current		-	-	76	A
V_{SD}	Body Diode Forward Voltage	$V_{GS} = 0V$, $I_S = 10A$	-		1.2	V
trr	Body Diode Reverse Recovery Time	$I_F = 10A$, di/dt = 100A/us	94	131	177	ns
Qrr	Body Diode Reverse Recovery Charge		-	851	-	nC

Notes:
1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
2. E_{AS} condition: Starting T_J=25C, V_{DD}=50V, V_{GS}=10V, R_G=25ohm, L=10mH, I_{AS}=3.6A, V_{DD}=0V during time in avalanche.
3. R is measured with the device mounted on a 1inch^2 pad of 2oz copper FR4 PCB.
4. Pulse Test: Pulse Width 0.5%.

Typical Performance Characteristics



Typical Performance Characteristics



Typical Performance Characteristics

Figure 11: Normalized Breakdown voltage vs. Junction Temperature

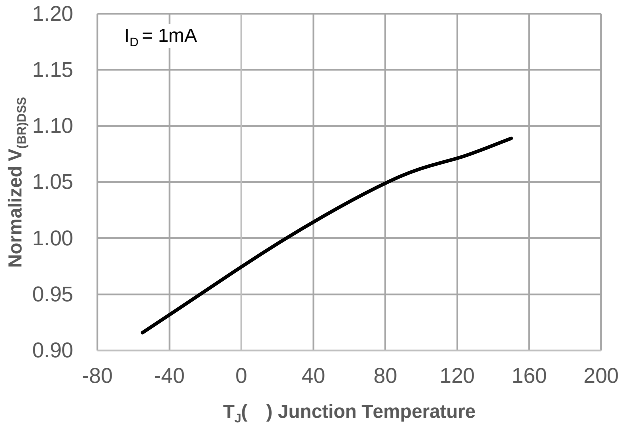


Figure 12: Normalized on Resistance vs. Junction Temperature

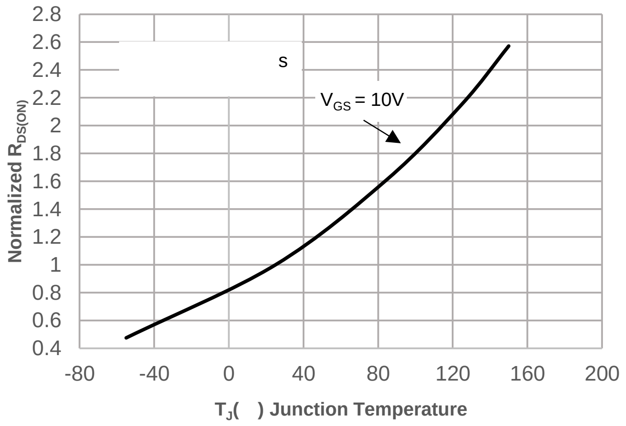


Figure 13: Normalized Threshold Voltage vs. Junction Temperature

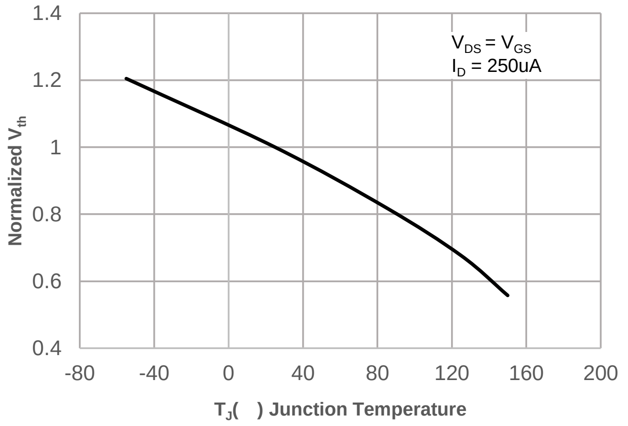


Figure 14: $R_{DS(ON)}$ vs. V_{GS}

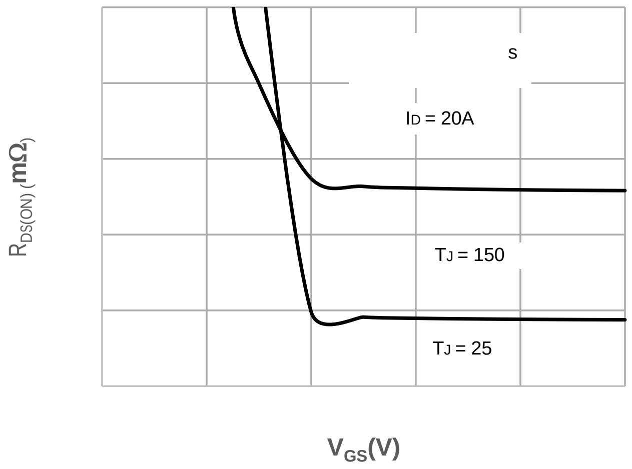
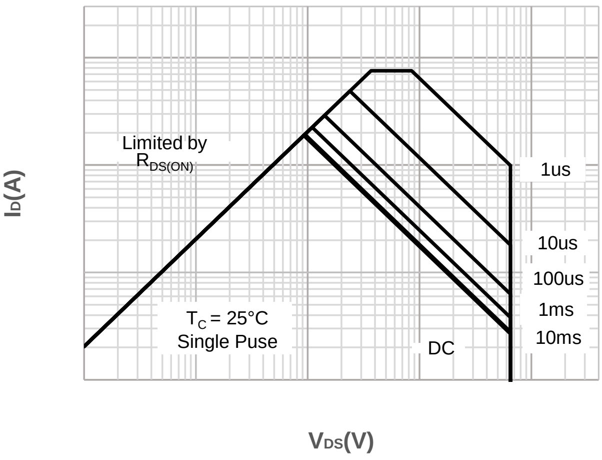


Figure 15: Maximum Safe Operating Area



Test Circuit

Figure 1: Gate Charge Test Circuit & Waveform

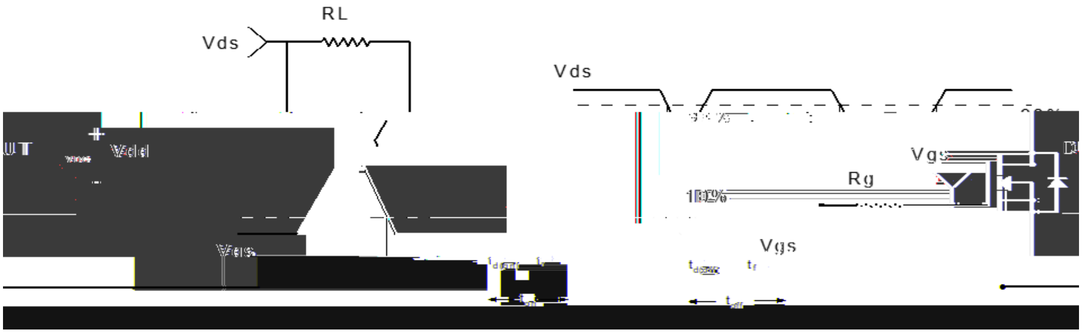


Figure 2: Resistive Switching Test Circuit & Waveform

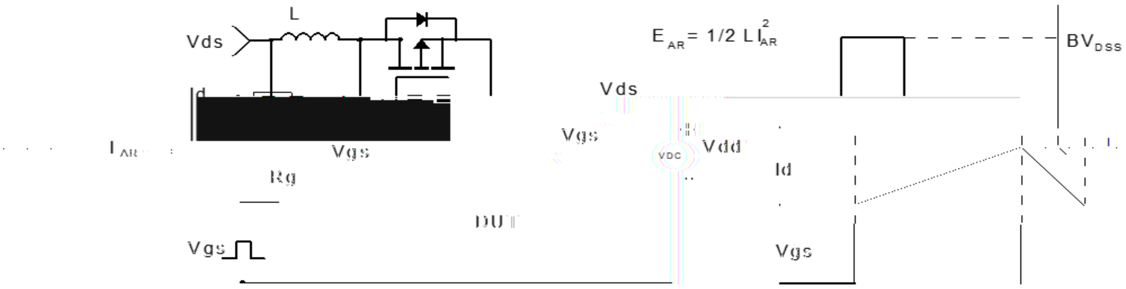


Figure 3: Unclamped Inductive Switching Test Circuit& Waveform

Figure 4: Diode Recovery Test Circuit & Waveform

Package Mechanical Data(DFN8080-4L)