

-60V_{DS}/±20V_{GS} P-Channel Enhancement Mode MOSFET
Features

- $V_{DS}=-60V, I_D=-65A$
- $R_{DS(ON)}=20m\Omega$ (TYP.) $V_{GS}=-10V$
- Reliable and Rugged
- Avalanche Rated
- Low On-Resistance
- High Current Capability

Applications

- Load Switch
- Power management in portable/desktop PCs
- DC/DC conversion

Ordering Information

Device	package	Device Marking	Package Qty.
HSH6115	TO-263	**	800/PCS

Absolute Maximum Ratings ($T_C=25^\circ C$, unless otherwise noted)

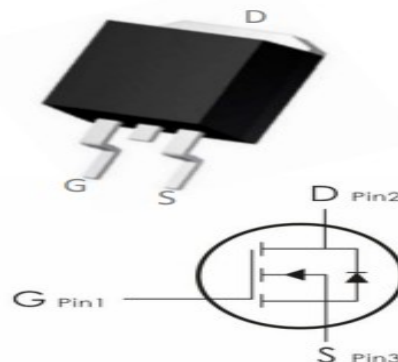
Parameter	Symbol	Value	Unit
Drain-Source Voltage ($V_{GS}=0V$)	V_{DS}	-60	V
Gate-Source Voltage ($V_{GS}=0V$, static)	V_{GS}	±20	V
Continuous Drain Current ($T_C=25^\circ C$)	I_D	-65	A
Continuous Drain Current ($T_C=100^\circ C$)		-45	A
Pulsed Drain Current	I_{DM}	-280	A
Avalanche Energy, Single Pulsed	E_{AS}	750	mJ
Maximum Power Dissipation ($T_C=25^\circ C$)	P_D	280	W
Maximum Power Dissipation ($T_C=100^\circ C$)		30	W
Operating, Storage Temperature Range	T_J, T_{STG}	-55~150	$^\circ C$

Electrical Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=-250\mu A$	-60	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-30V, V_{GS}=0V$	-	-	-1	μA
Gate -Source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	±10	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1.1	-1.6	-2.2	V
Drain-Source On-stage Resistance	$R_{DS(ON)}$	$V_{GS}=-10V, I_D=-1A$	-	16	20	m Ω
		$V_{GS}=-4.5V, I_D=-1A$	-	18	24	
Body Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_{SD}=-1A$	-	-0.75	-1	V

Thermal Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	-	4.4	-	$^\circ C/W$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	-	-	-	$^\circ C/W$

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Dynamic Characteristics

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Input capacitance	C_{iss}	$V_{DS}=-15V$ $V_{GS}=0V$ $f=1MHz$	-	4399	-	pF
Output capacitance	C_{oss}		-	258	-	
Reverse transfer capacitance	C_{rss}		-	211	-	
Gate Resistance	R_g	$f=1MHz$	-	-	-	Ω
Total Gate Charge	Q_g	$V_{DS}=-15V$ $V_{GS}=-10V$ $I_D=-15A$	-	114	-	nC
Gate Source Charge	Q_{gs}		-	27	-	
Gate Drain Charge	Q_{gd}		-	49	-	
Turn-on delay Time	$t_{d(on)}$	$V_{GS}=-10V$ $V_{DS}=-15V$ $R_L=1\Omega$ $R_G=3\Omega$	-	23	-	ns
Rise time	t_r		-	17	-	
Turn-off delay Time	$t_{d(off)}$		-	55	-	
Fall time	t_f		-	29	-	
Reverse Recovery Time	t_{rr}	$V_{GS}=0V, I_{SD}=-15A$ $dI/dt=100A/\mu s$	-	117	-	ns
Reverse Recovery Charge	Q_{rr}		-	420	-	nC

Electrical Characteristics Diagrames

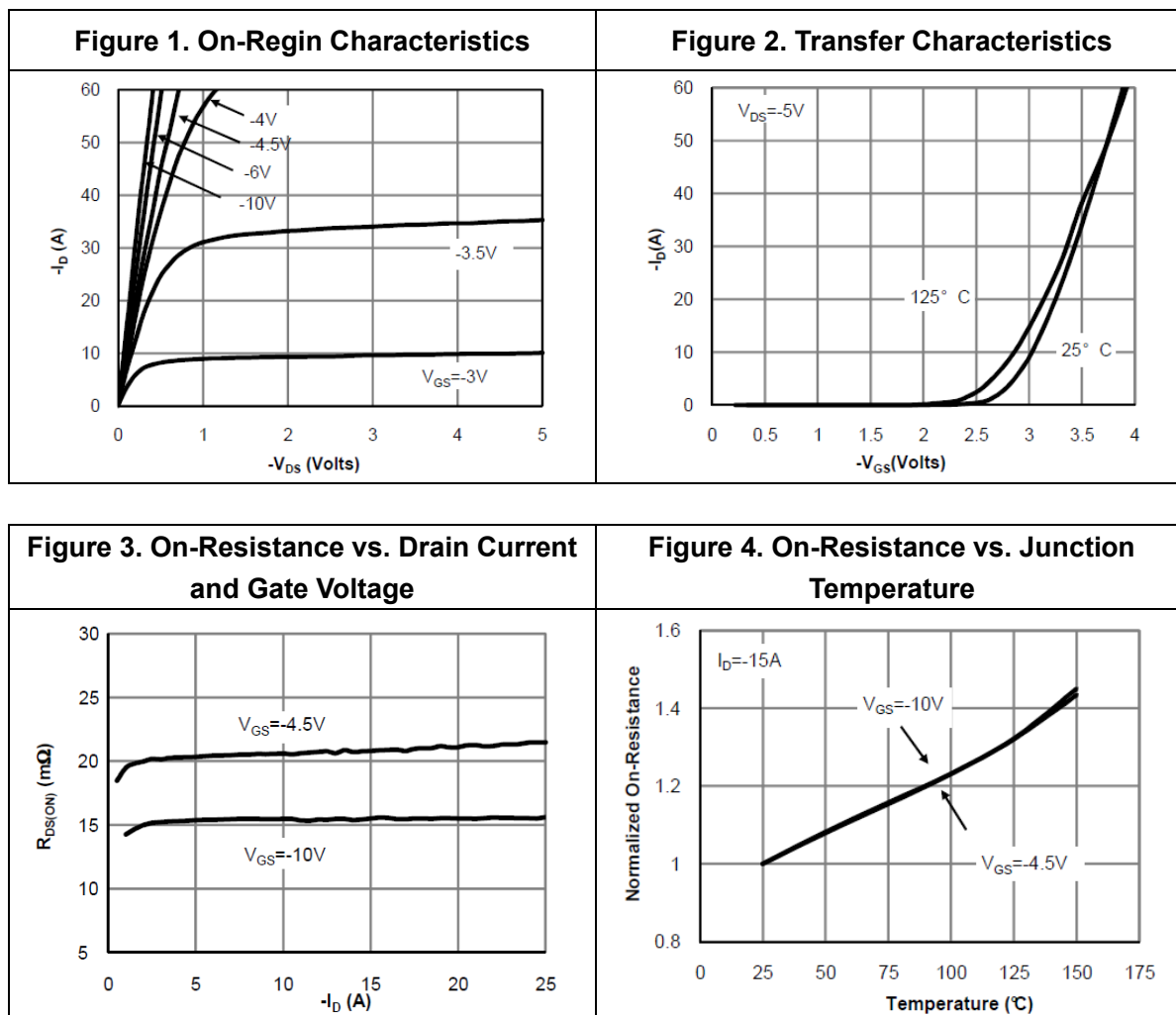
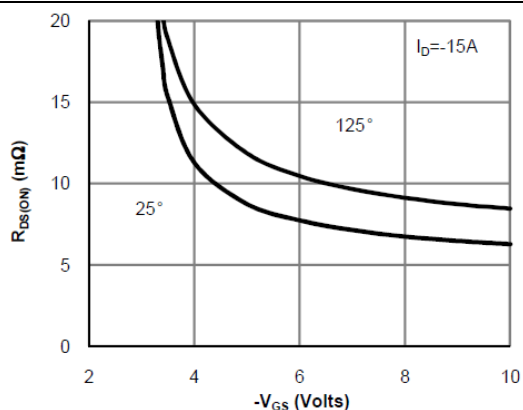
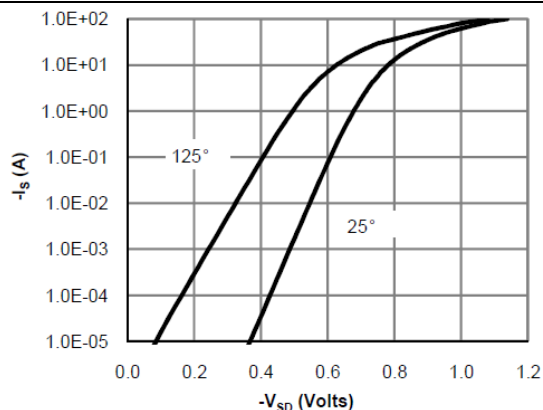
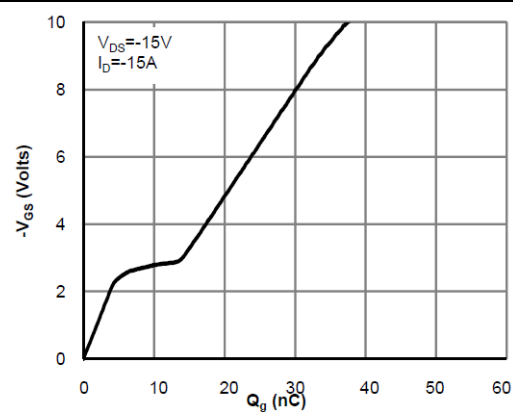
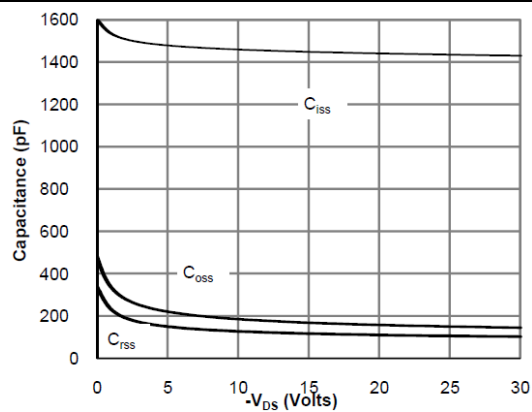
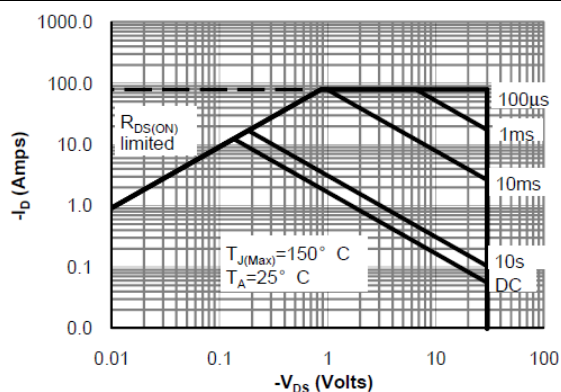
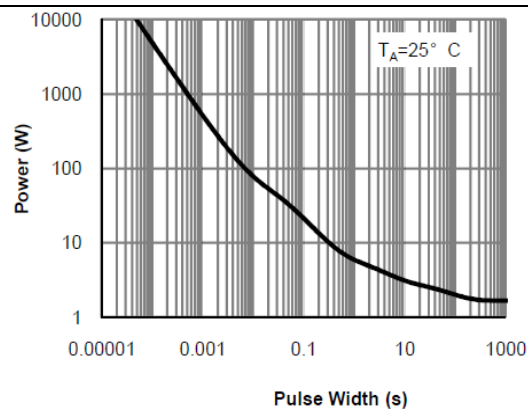


Figure 5. On-Resistance vs. Gate-Source Voltage

Figure 6. Body-Diode Characteristics

Figure 7. Gate-Charge Characteristics

Figure 8. Capacitance Characteristics

Figure 9. Maximum Forward Biased Safe Operating Area

Figure 10. Single Pulse Power Rating Junction-to-Ambient


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