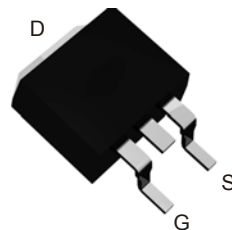
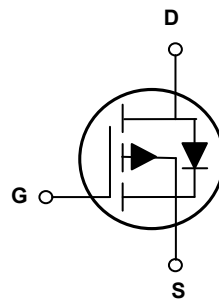


Main Product Characteristics

$V_{(BR)DSS}$	-150V
$R_{DS(ON)}$	160mΩ (Max.)
I_D	-15A



TO-263 (D²PAK)



Schematic Diagram

Features and Benefits

- Advanced MOSFET process technology
- Ideal for high efficiency switched mode power supplies
- Low on-resistance with low gate charge
- Fast switching and reverse body recovery



Description

The GSFT161P15 utilizes the latest techniques to achieve high cell density and low on-resistance. These features make this device extremely efficient and reliable for use in high efficiency switch mode power supplies and a wide variety of other applications.

Absolute Maximum Ratings ($T_J=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Max.	Unit
Drain-Source Voltage	V_{DS}	-150	V
Gate-to-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current, @ Steady-State ($T_C=25^\circ\text{C}$)	I_D	-15	A
Continuous Drain Current, @ Steady-State ($T_C=100^\circ\text{C}$)		-11	A
Pulsed Drain Current ($T_C=25^\circ\text{C}$) ¹	I_{DM}	-45	A
Power Dissipation ($T_C=25^\circ\text{C}$) ²	P_D	80	W
Single Pulse Avalanche Energy	E_{AS}	65	mJ
Single Pulse Current	I_{AS}	-36	A
Thermal Resistance, Junction-to-Ambient (PCB Mounted, Steady-State)	$R_{\theta JA}$	59	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	1.56	$^\circ\text{C/W}$
Operating Junction and Storage Temperature Range	T_J/T_{STG}	-55 to +150	$^\circ\text{C}$
Soldering Temperature (SMD)	T_{sld}	260	$^\circ\text{C}$

Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
On / Off Characteristics						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-150	-	-	V
Drain-to-Source Leakage Current	I_{DSS}	$V_{DS}=-150V, V_{GS}=0V, T_J=25^{\circ}\text{C}$	-	-	-1.0	μA
		$V_{DS}=-150V, V_{GS}=0V, T_J=125^{\circ}\text{C}$	-	-1.0	-	
Static Drain-to-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=-10V, I_D=-2.4A$	-	130	160	m Ω
		$V_{GS}=-6V, I_D=-2.2A$	-	141	185	
Gate-to-Source Forward Leakage	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$	-	-	± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-2.0	-	-4.0	V
Dynamic and Switching Characteristics						
Input Capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=-75V, f=1\text{MHz}$	-	1059	-	pF
Output Capacitance	C_{oss}		-	89	-	
Reverse Transfer Capacitance	C_{rss}		-	3.5	-	
Total Gate Charge ^{3,4}	Q_g	$I_D=-2.4A, V_{DD}=-75V, V_{GS}=-10V$	-	15	-	nC
Gate-to-Source Charge ^{3,4}	Q_{gs}		-	5.3	-	
Gate-to-Drain ("Miller") Charge ^{3,4}	Q_{gd}		-	2.2	-	
Gate-to-Plateau ^{3,4}	$V_{plateau}$		-	4.6	-	V
Turn-On Delay Time ^{3,4}	$t_{d(on)}$	$V_{DD}=-75V, V_{GS}=-10V, R_G=6\Omega, I_D=-2.4A$	-	8.9	-	nS
Rise Time ^{3,4}	t_r		-	21	-	
Turn-Off Delay Time ^{3,4}	$t_{d(off)}$		-	25	-	
Fall Time ^{3,4}	t_f		-	21	-	
Gate Resistance	R_g	$f=1\text{MHz}$	-	2.6	-	Ω
Drain-Source Ratings and Characteristics						
Continuous Source Current (Body Diode)	I_S	MOSFET symbol showing the integral reverse p-n junction diode.	-	-	-15	A
Diode Pulse Current	$I_{S,pulse}$		-	-	-45	A
Diode Forward Voltage	V_{SD}	$I_S=-2.4A, V_{GS}=0V$	-	-	-1.4	V
Reverse Recovery Time ³	t_{rr}	$I_S=-2.4A, V_{GS}=0V, di/dt=100A/\mu s$	-	51	-	nS
Reverse Recovery Charge ³	Q_{rr}		-	122	-	nC

Notes:

- Pulse time is 5 μs .
- The dissipated power value will change with the temperature. When it is greater than 25 $^{\circ}\text{C}$, the dissipated power value will decrease 0.31W/ $^{\circ}\text{C}$ for each 1 degree of temperature increase.
- Pulse test: Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
- Basically unaffected by operating temperature.

Typical Electrical and Thermal Characteristic Curves

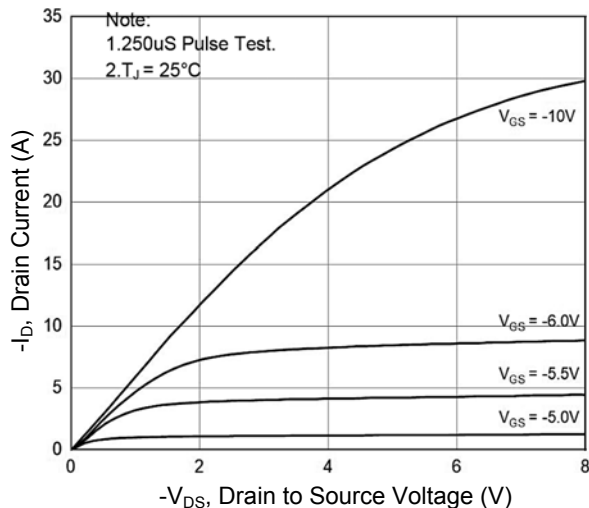


Figure 1. Output Characteristics

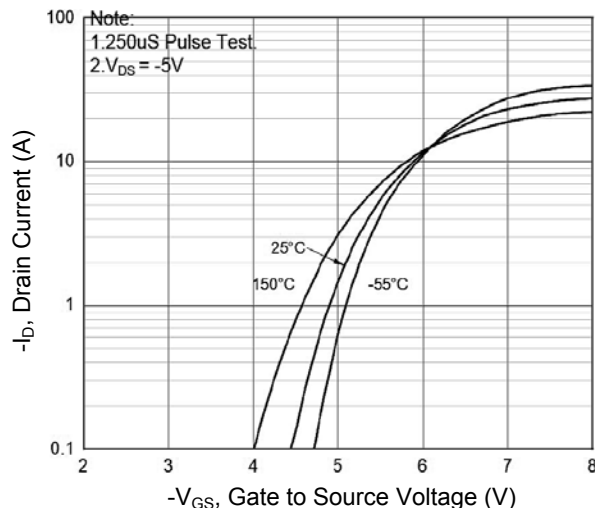


Figure 2. Transfer Characteristics

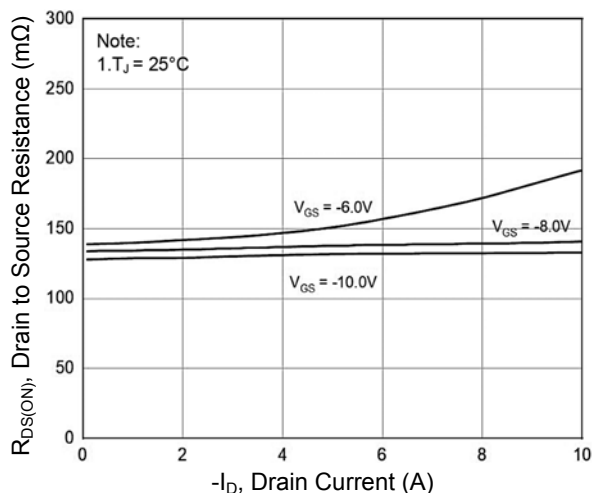


Figure 3. On-Resistance vs. Drain Current

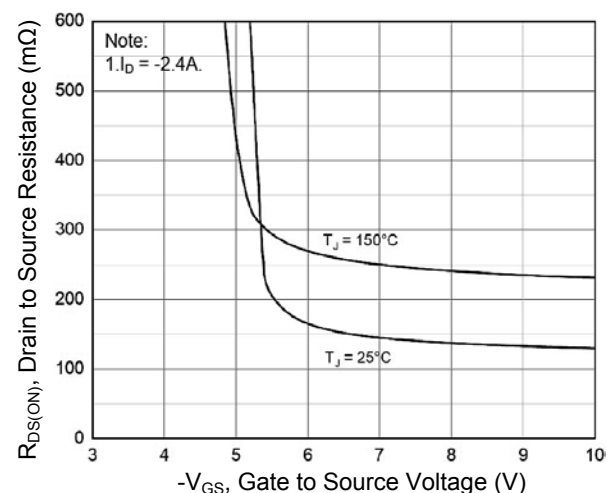


Figure 4. On-Resistance vs. V_{GS}

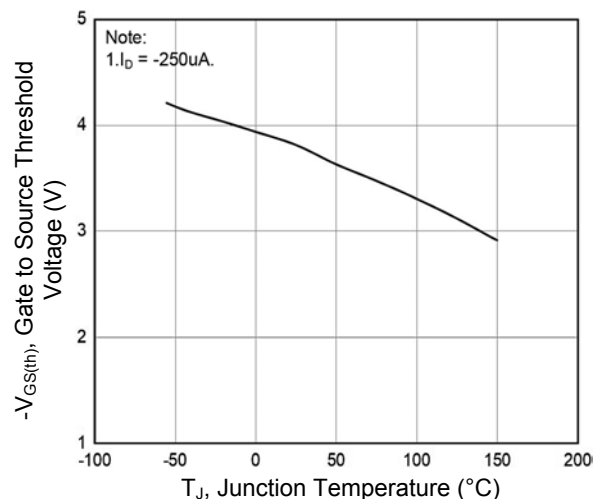


Figure 5. $V_{GS(th)}$ vs. T_J

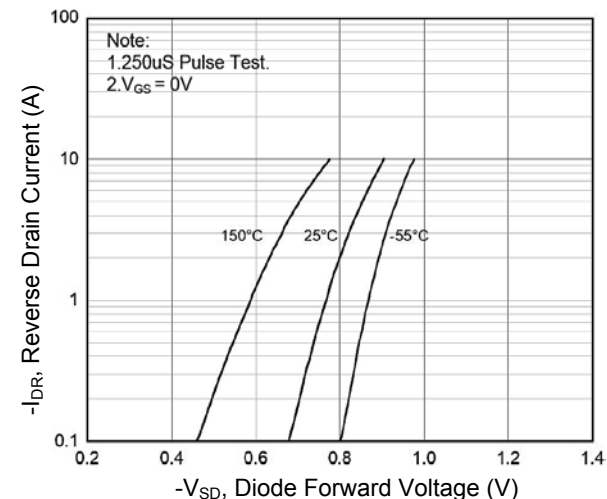


Figure 6. Body Diode Characteristics

Typical Electrical and Thermal Characteristic Curves

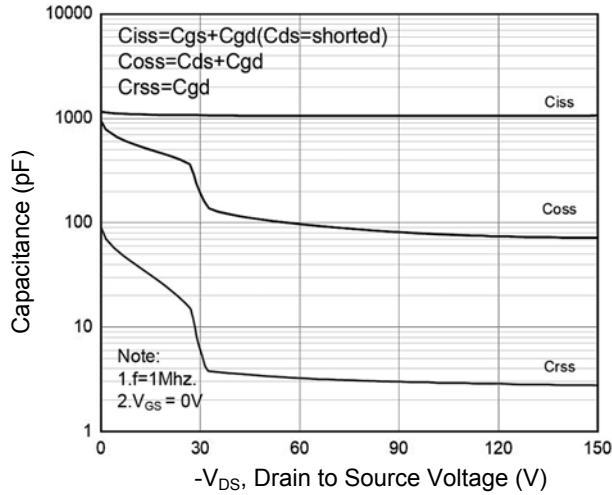


Figure 7. Capacitance Characteristics

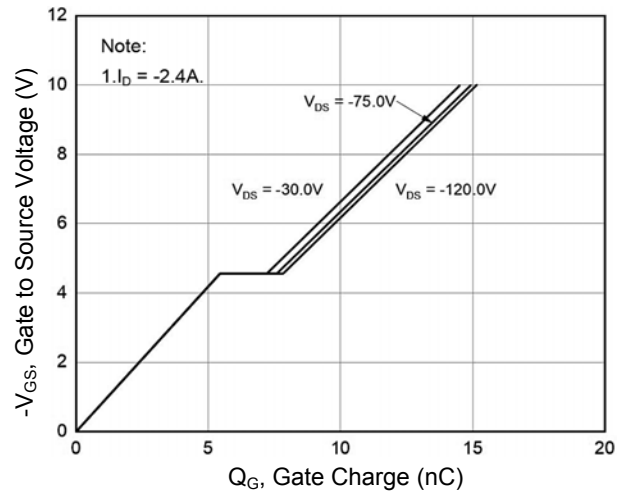


Figure 8. Gate Charge

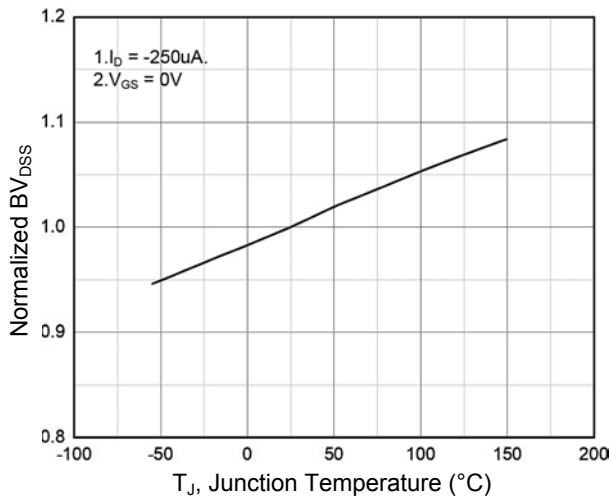


Figure 9. Normalized BV_{DS} vs. T_J

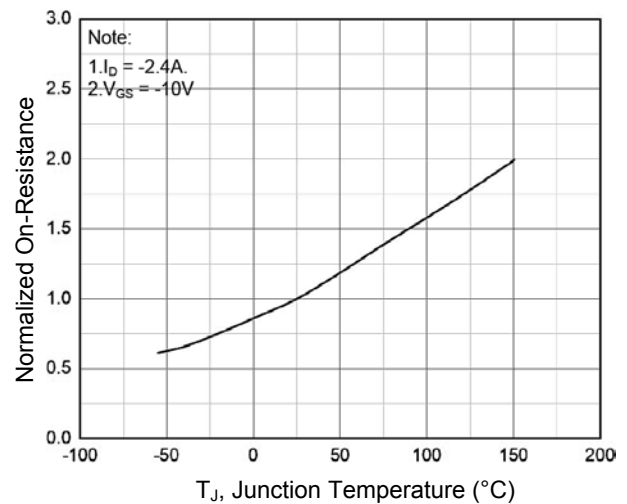


Figure 10. Normalized On-Resistance vs. T_J

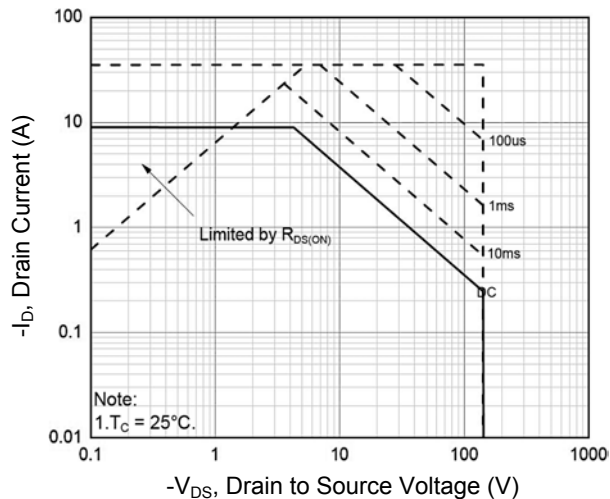
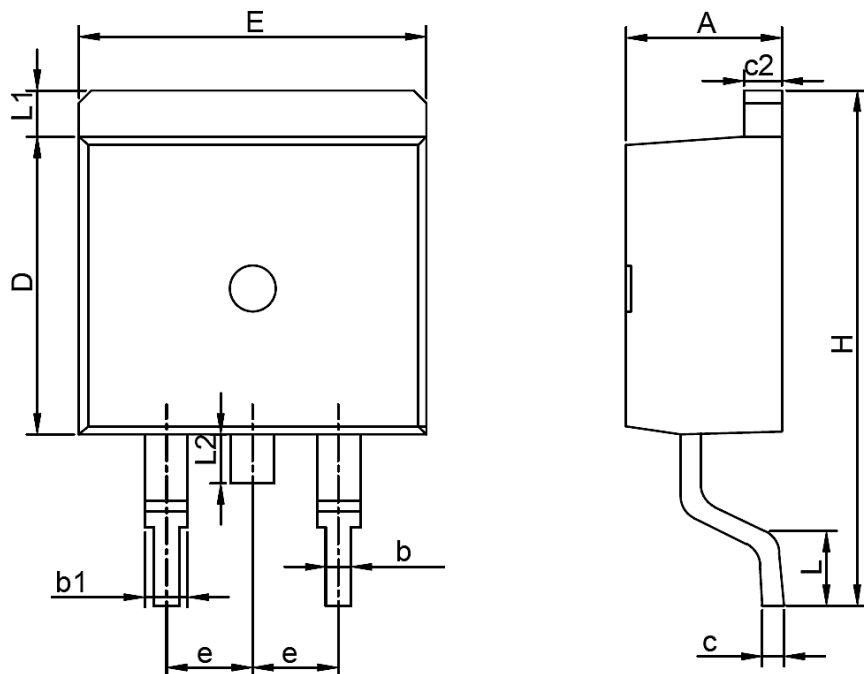


Figure 11. Safe Operation Area

Package Outline Dimensions TO-263 (D²PAK)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	4.30	4.90	0.169	0.193
b	0.70	0.95	0.028	0.037
b1	1.07	1.50	0.042	0.059
c	0.28	0.60	0.011	0.024
c2	1.17	1.37	0.046	0.054
D	8.40	9.35	0.331	0.368
E	9.80	10.45	0.386	0.411
e	2.54 BSC		0.100 BSC	
H	14.70	16.30	0.579	0.642
L	2.00	3.80	0.079	0.150
L1	0.97	1.42	0.038	0.056
L2	-	1.75	-	0.069

Order Information

Device	Package	Marking	Carrier	Quantity
GSFT161P15	TO-263 (D ² PAK)	T161P15	Tape & Reel	800 Pcs / Reel