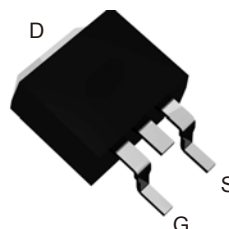
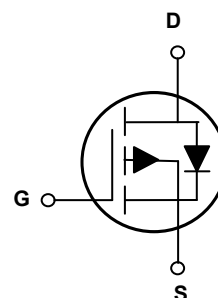


Main Product Characteristics

V_{DS}	-150V
$R_{DS(ON)}$	88m Ω (Max.)
I_D	-30A



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 GSFT1530 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 supply and a wide variety of other applications.

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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	-150	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	I_D	-30	A
Drain Current-Continuous ($T_C=100^{\circ}\text{C}$)		-21.2	A
Pulsed Drain Current	I_{DM}	-120	A
Maximum Power Dissipation	P_D	180	W
Derating Factor		1.2	W/ $^{\circ}\text{C}$
Single Pulse Avalanche Energy ⁴	E_{AS}	338	mJ
Thermal Resistance, Junction-to-Case ¹	$R_{\theta JC}$	0.83	$^{\circ}\text{C}/\text{W}$
Thermal Resistance, Junction-to-Ambient ³	$R_{\theta JA}$	50	$^{\circ}\text{C}/\text{W}$
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To +175	$^{\circ}\text{C}$

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

Parameter	Symbol	Condition	Min	Typ	Max	Unit
On / Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =-250μA	-150	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =-150V, V _{GS} =0V	-	-	1	μA
Gate-Body Leakage Current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V	-	-	±100	nA
Gate Threshold Voltage ²	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	-1.5	-1.8	-2.5	V
Drain-Source On-State Resistance ²	R _{DS(on)}	V _{GS} =-10V, I _D =-20A	-	78	88	mΩ
		V _{GS} =-4.5V, I _D =-20A	-	81.5	95	mΩ
Forward Transconductance ²	g _{fs}	V _{DS} =-10V, I _D =-20A	-	50	-	S
Dynamic and Switching Characteristics						
Input Capacitance ³	C _{iss}	V _{DS} =-75V, V _{GS} =0V, F=1.0MHz	-	6015	-	pF
Output Capacitance ³	C _{oss}		-	117	-	
Reverse Transfer Capacitance ³	C _{rss}		-	85	-	
Turn-On Delay Time ³	t _{d(on)}	V _{DD} =-75V, I _D =-20A, V _{GS} =-10V, R _{GEN} =9.1Ω	-	17	-	nS
Turn-On Rise Time ³	t _r		-	80	-	
Turn-Off Delay Time ³	t _{d(off)}		-	45	-	
Turn-Off Fall Time ³	t _f		-	65	-	
Total Gate Charge ³	Q _g	V _{DS} =-75V, I _D =-20A, V _{GS} =-10V	-	124	-	nC
Gate-Source Charge ³	Q _{gs}		-	20	-	
Gate-Drain Charge ³	Q _{gd}		-	28	-	
Drain-Source Ratings and Characteristics						
Diode Forward Voltage ²	V _{SD}	V _{GS} =0V, I _S =-20A	-	-	-1.2	V
Diode Forward Current ¹	I _S	-	-	-	-30	A
Reverse Recovery Time ²	t _{rr}	T _J =25°C, I _F =-20A, di/dt=100A/μs	-	90	-	nS
Reverse Recovery Charge ²	Q _{rr}		-	145	-	nC
Forward Turn-On Time	t _{on}	Intrinsic turn-on time is negligible (turn-on is dominated by LS+LD)				

Notes:

1. The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz. copper, in a still air environment with $T_A=25^\circ\text{C}$. The value in any given application depends on the user's specific board design, and the maximum temperature of 150°C may be used if the PCB allows it.
2. Pulse test: Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
3. Guaranteed by design, not subject to production.
4. E_{AS} condition: $T_J=25^\circ\text{C}$, $V_{DD}=-50V$, $V_G=-10V$, $L=0.5mH$, $R_g=25\Omega$.

Typical Electrical and Thermal Characteristic Curves

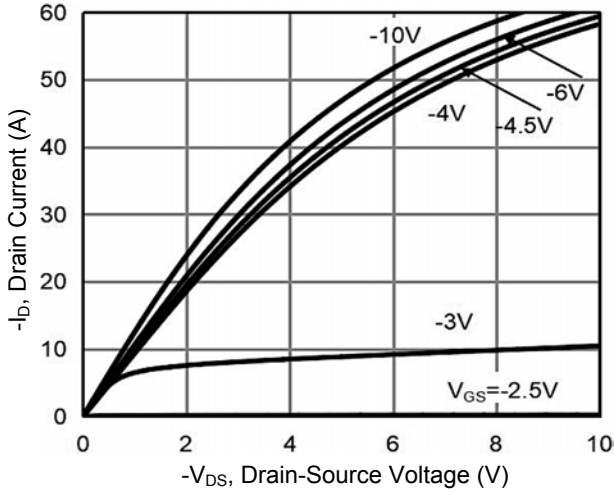


Figure 1. Output Characteristics

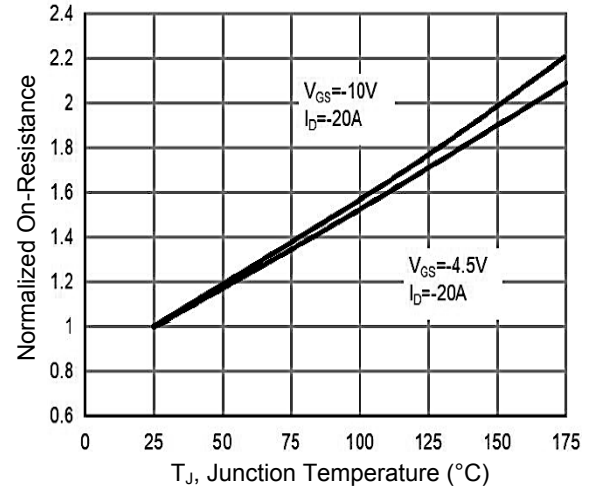


Figure 2. $R_{DS(ON)}$ vs. Junction Temperature

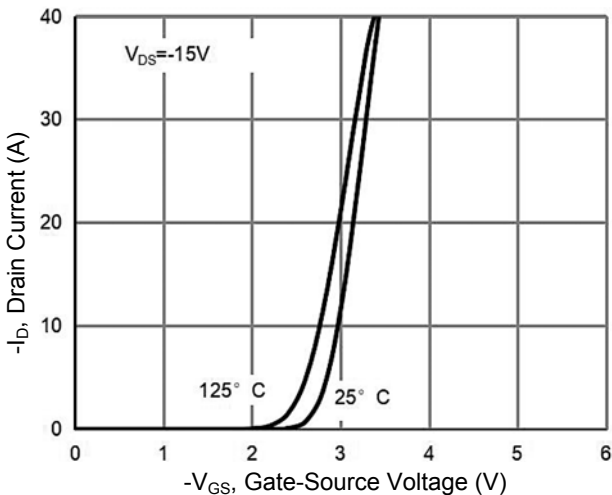


Figure 3. Transfer Characteristics

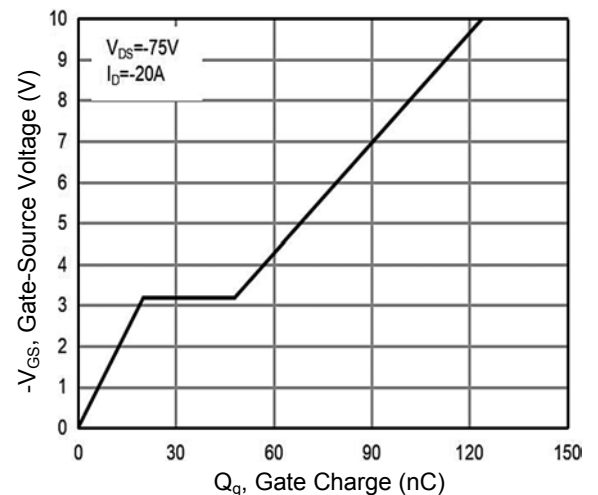


Figure 4. Gate Charge

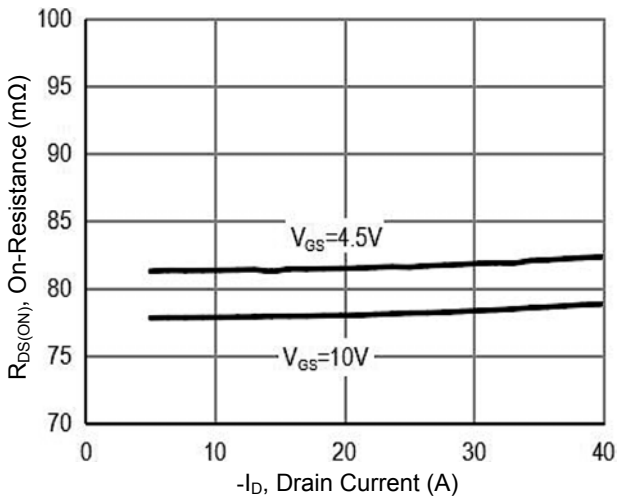


Figure 5. $R_{DS(ON)}$ vs. Drain Current

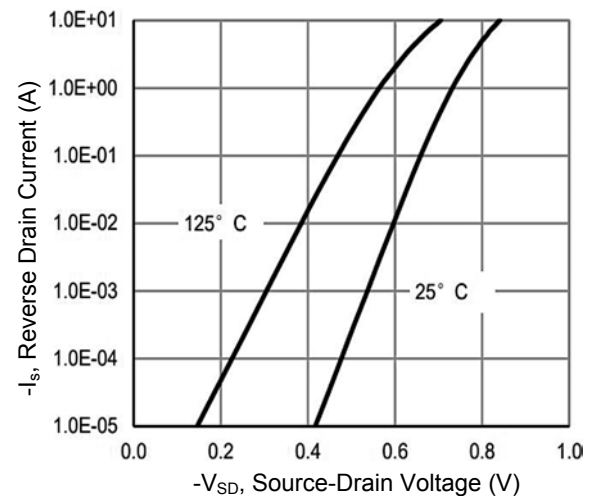


Figure 6. Source-Drain Diode Forward Voltage

Typical Electrical and Thermal Characteristic Curves

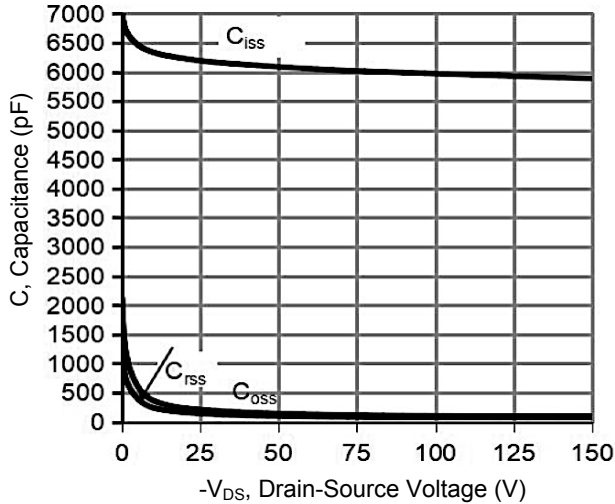


Figure 7. Capacitance vs. V_{DS}

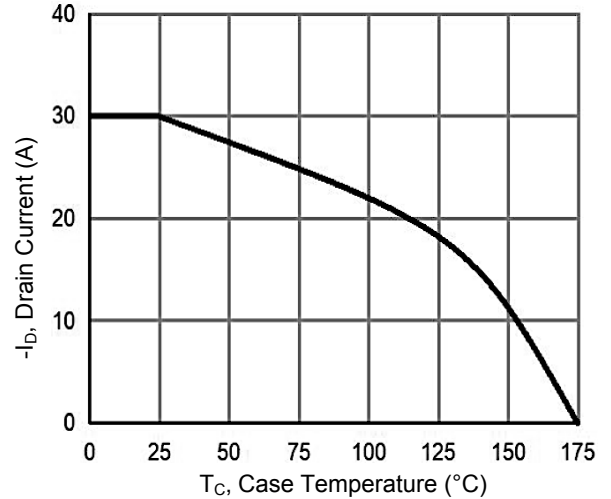


Figure 8. Drain Current vs. Case Temperature

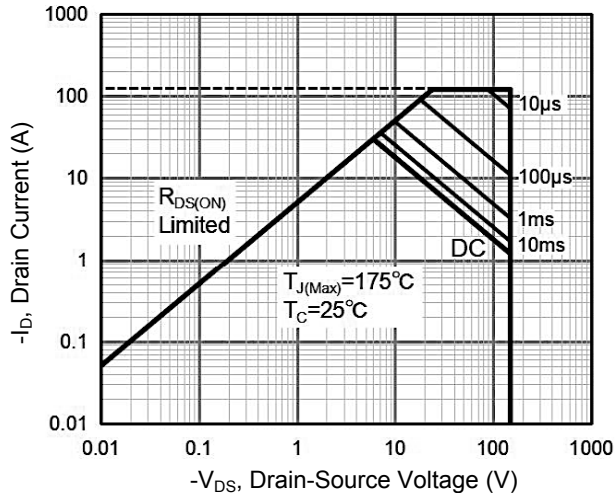


Figure 9. Safe Operation Area

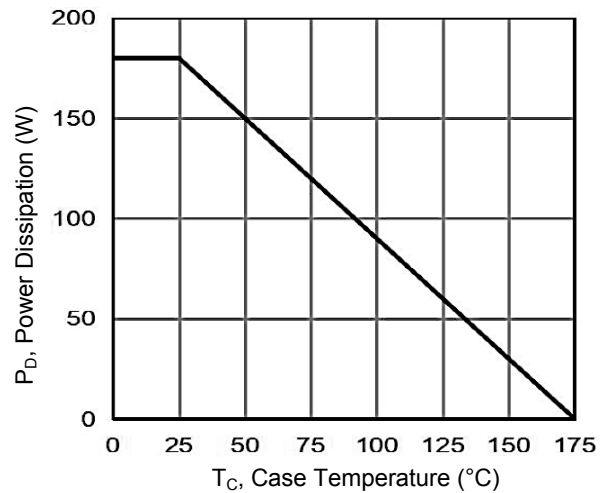


Figure 10. Power De-rating

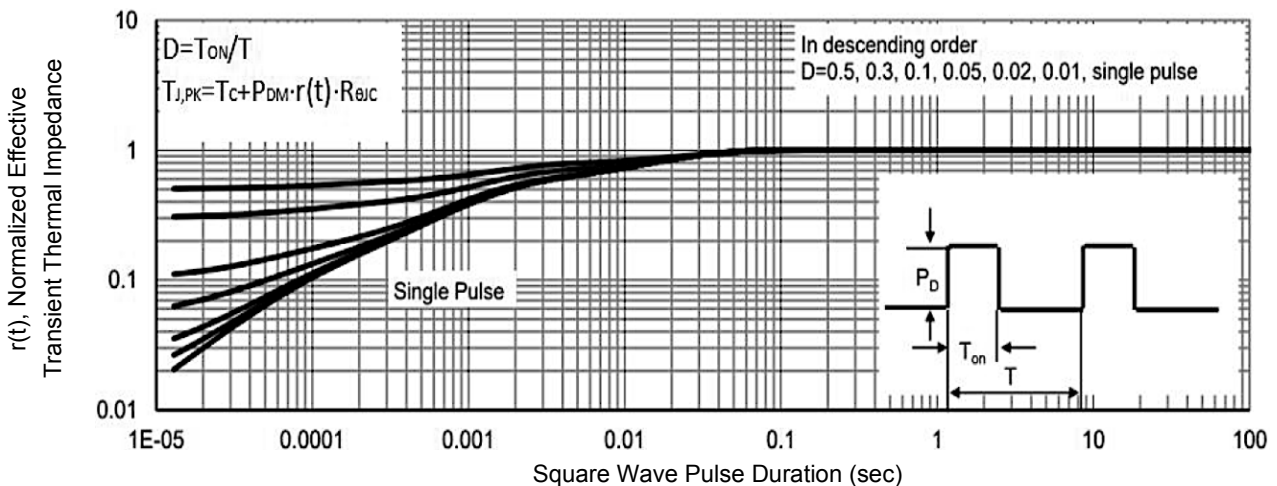
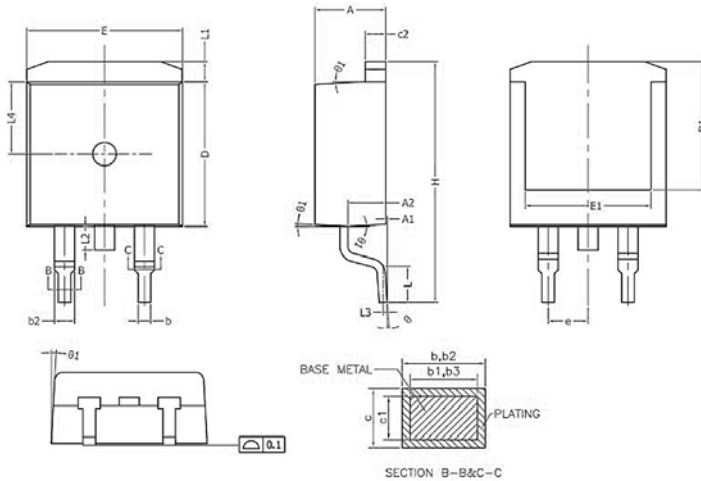


Figure 11. Normalized Maximum Transient Thermal Impedance

Package Outline Dimensions TO-263 (D²PAK)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.40	4.60	0.173	0.181
A1	0.00	0.25	0.000	0.010
A2	2.20	2.60	0.087	0.102
b	0.76	0.89	0.030	0.035
b1	0.75	0.85	0.030	0.033
b2	1.23	1.37	0.048	0.054
b3	1.22	1.32	0.048	0.052
c	0.47	0.60	0.019	0.024
c1	0.46	0.56	0.018	0.022
c2	1.25	1.35	0.049	0.053
D	9.10	9.30	0.358	0.366
D1	8.00	-	0.315	-
E	9.80	10.00	0.386	0.394
E1	7.80	-	0.307	-
e	2.54 BSC			
H	14.90	15.70	0.587	0.618
L	2.00	2.60	0.079	0.102
L1	1.17	1.40	0.046	0.055
L2	-	1.75	-	0.069
L3	0.25 BSC		0.010 BSC	
L4	4.60 REF		0.181 REF	
θ	0°	8°	0°	8°
θ1	1°	5°	1°	5°

Order Information

Device	Package	Marking	Carrier	Quantity
GSFT1530	TO-263 (D ² PAK)	T1530	Tape & Reel	800 Pcs / Reel

For more information, please contact us at: inquiry@goodarksemi.com