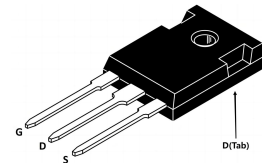


Features

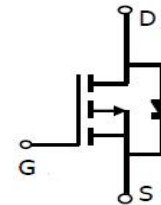
- $V_{DS}=-200V, I_D=-26A$
 $R_{DS(on)} < 170m\Omega @ V_{GS}=-10V$
- Fully characterized avalanche voltage and current
- Good stability and uniformity with high E_{AS}
- Excellent package for good heat dissipation



TO-247

Applications

- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply



Absolute Ratings ($T_c=25^\circ C$)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DSS}	-200	V
Transient Gate-Source Voltage	V_{GSM}	± 30	V
Continuous Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current-continuous	I_D	-26	A
Drain Current-continuous ($T_C=100^\circ C$)	$I_D(T_C=100^\circ C)$	-14.1	A
Drain Current-pulse (note 1)	I_{DM}	-70	A
Single Pulsed Avalanche Energy (note 2)	E_{AS}	1500	mJ
Maximum Power Dissipation	PD $T_C=25^\circ C$ Derate above $25^\circ C$	297	W
		0.4	W/ $^\circ C$
Operating and Storage Temperature Range	T_J, T_{STG}	-55~+150	$^\circ C$
Maximum Lead Temperature for Soldering Purpose	T_L	300	$^\circ C$
Mounting Torque	M_d	1.13	Nm
Weight	-	6.0	g
Isolation Voltage for terminal to Case	V_{ISO}	DC	2.4
		AC	2.0
			KV

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

Parameter	Symbol	Tests conditions	Min	Typ	Max	Units
Drain-Source Voltage	BV_{DSS}	$I_D=250\mu A, V_{GS}=0V$	-200	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=-200V, V_{GS}=0V$	-	-	-2	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
On-Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	-2.0	-3.0	-4.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{DS}=-15V, I_D=-13A$	-	130	170	m Ω
Forward Trans-conductance	g_{fs}	$V_{DS}=-5V, I_D=-13A$ (note 4)	-	20	-	S
Dynamic Characteristics						
Input capacitance	C_{iss}	$V_{DS}=-30V, V_{GS}=0V,$ $f=1.0MHz$	-	2485	-	pF
Output capacitance	C_{oss}		-	114	-	pF
Reverse transfer capacitance	C_{rss}		-	104	-	pF

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

Parameter	Symbol	Tests conditions	Min	Typ	Max	Units
Switching-Characteristics						
Turn-On delay time	t _{d(on)}	V _{DD} =-100V,I _D =-20A, R _G =3Ω V _{GS} =-10V (note 4,5)	-	16	-	ns
Turn-On rise time	t _r		-	18	-	ns
Turn-Off delay time	t _{d(Off)}		-	45	-	ns
Turn-Off rise time	t _f		-	19	-	ns
Total Gate Charge	Q _g	V _{DS} =-100V,I _D =-13A, V _{GS} =-10V (note 4,5)	-	56	-	nC
Gate-Source charge	Q _{gs}		-	15	-	nC
Gate-Drain charge	Q _{gd}		-	16	-	nC
Drain-Source Diode Characteristics and Maximum Ratings						
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} =0V,I _S =-13A	-	-	-3.2	V
Diode Forward Current	I _S		-	-	-26	A

Reverse recovery time	t_{rr}	$V_{GS}=0V, I_S=-13A$ $V_{SD}=-100V$ $-dI_F/dt=100A/\mu s$ (note 4)	-	250	-	ns
Reverse recovery charge	Q_{rr}		-	2100	-	nC
Reverse recovery Current	I_{RM}		-	-10.0	-	A

Thermal Characteristic

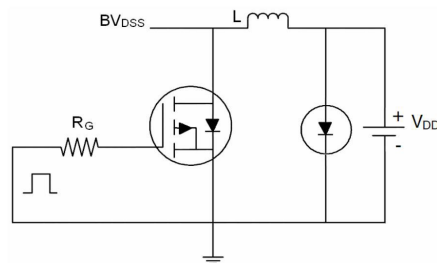
Parameter	Symbol	Value	Unit
Thermal Resistance, junction to Case	$R_{th}(J-C)$	0.42	$^{\circ}C/W$
Thermal Resistance, junction to Ambient	$R_{th}(J-A)$	40	$^{\circ}C/W$

Notes:

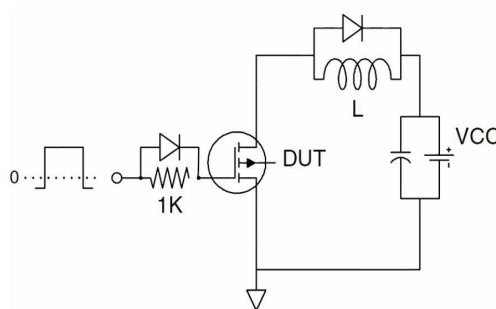
1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 10$ sec.
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production
5. EAS condition: $T_j=25^{\circ}C, V_{DD}=-30V, V=-10V, L=0.5mH, R_g=25\Omega$

Test Circuit

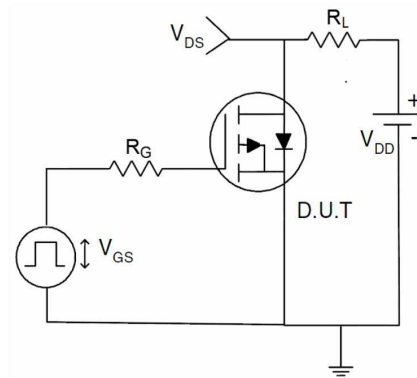
(1) E_{AS} Test Circuit



(2) Gate Charge Test Circuit



(3) Switch Time Test Circuit



Typical characteristic curves

Fig. 1. Output Characteristics @ $T_J = 25^\circ\text{C}$

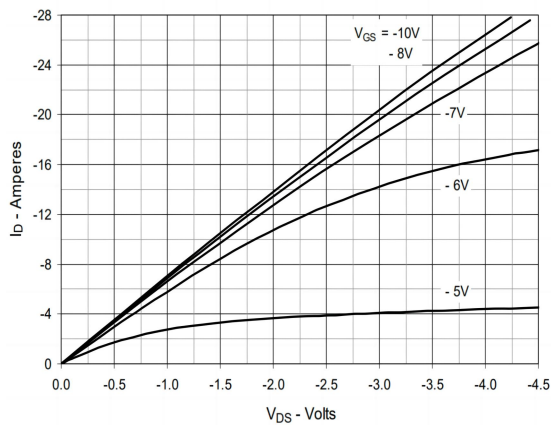


Fig. 2. Extended Output Characteristics @ $T_J = 25^\circ\text{C}$

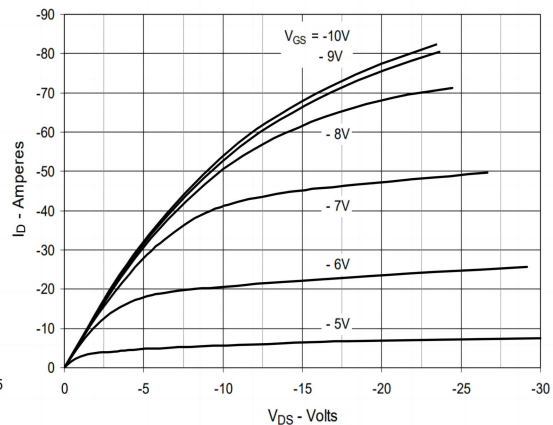


Fig. 3. Output Characteristics @ $T_J = 125^\circ\text{C}$

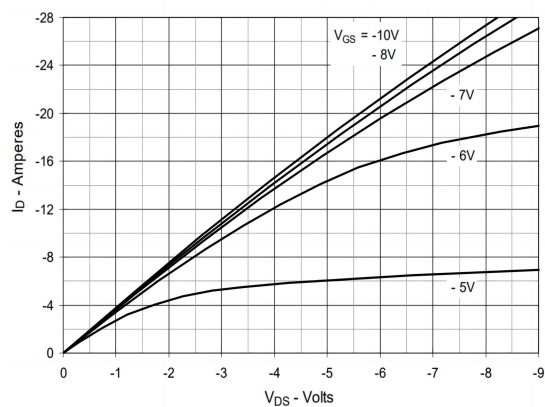


Fig. 4. $R_{DS(on)}$ Normalized to $I_D = -13\text{A}$ Value vs. Junction Temperature

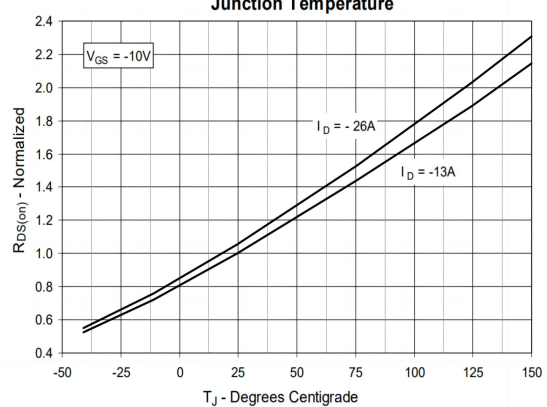


Fig. 5. $R_{DS(on)}$ Normalized to $I_D = -13A$ Value vs. Drain Current

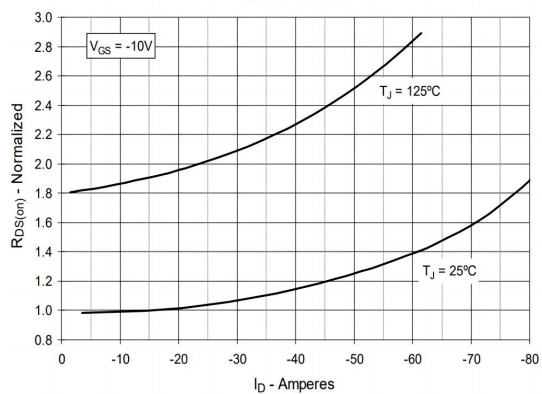


Fig. 6. Maximum Drain Current vs. Case Temperature

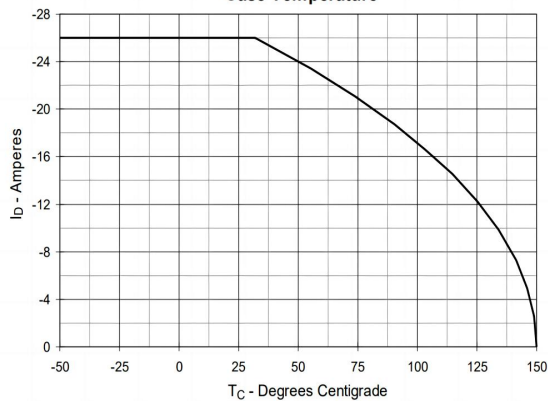


Fig. 7. Input Admittance

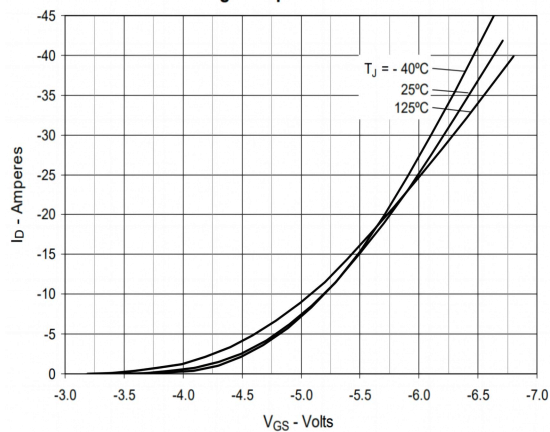


Fig. 8. Transconductance

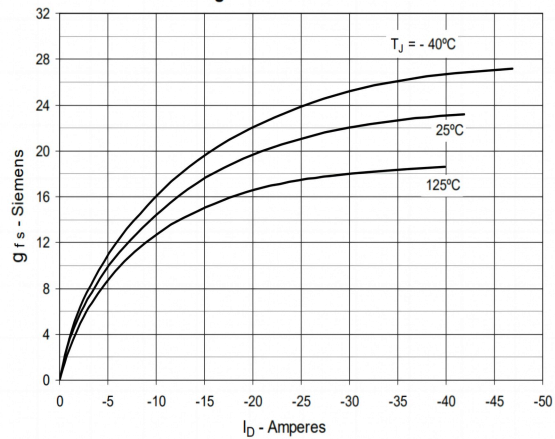


Fig. 9. Forward Voltage Drop of Intrinsic Diode

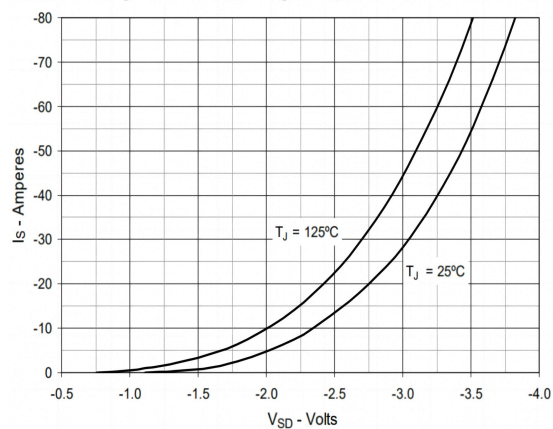


Fig. 10. Gate Charge

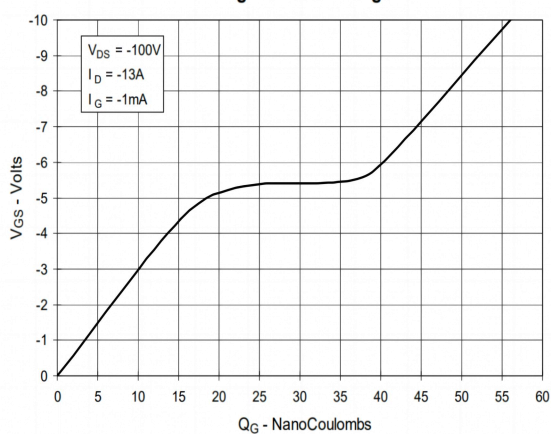


Fig. 11. Capacitance

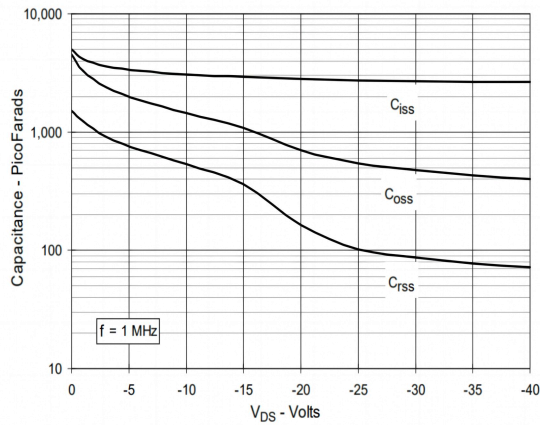


Fig. 12. Maximum Transient Thermal Impedance

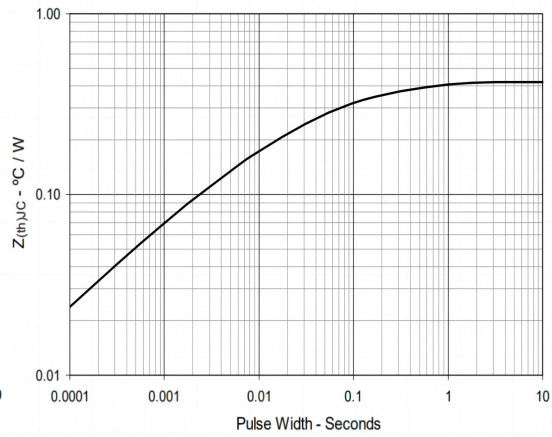


Fig. 13. Forward-Bias Safe Operating Area
@ $T_C = 25^{\circ}\text{C}$

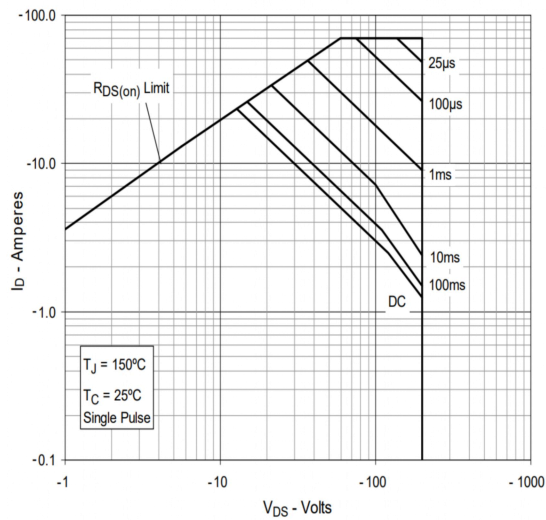
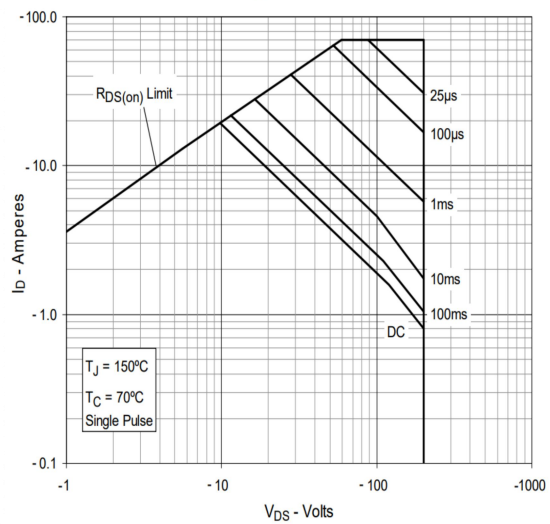


Fig. 14. Forward-Bias Safe Operating Area
@ $T_C = 70^{\circ}\text{C}$



Package Mechanical DATA

