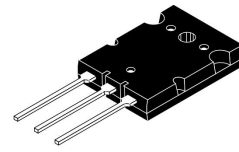


Features

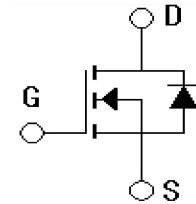
- $V_{DS}=300V, I_D=140A$
 $R_{DS(on)} < 30m\Omega @ V_{GS}=10V$
- High density cell design for ultra low $R_{DS(on)}$
- Low gate charge
- Improved dv/dt capability
- RoHS product



TO-264

Applications

- Power switching application
- Isolated DC/DC converters in Telecom and Industrial
- Synchronous Rectification in DC/DC Converters



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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DSS}	300	V
Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current-continuous	I_D	140	A
Lead Current Limit, RMS	I_{LRMS}	75	A
Drain Current-pulse	I_{DM}	300	A
Single Pulsed Avalanche Energy	E_{AS}	5	J
Maximum Power Dissipation	PD TC=25°C Derate above 25°C	1040	W
Operating and Storage Temperature Range	T_J, T_{STG}	-55~+150	°C

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

Parameter	Symbol	Tests conditions	Min	Typ	Max	Units
Drain-Source Voltage	BV_{DSS}	$I_D=3mA, V_{GS}=0V$	300	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=V_{DSS}, V_{GS}=0V$	-	-	25	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 200	nA

On-Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=8mA$	3.0		5.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=70A$	-	26	30	m Ω
Forward Transconductance	g_{fs}	$V_{DS}=20V, I_D=70A$	50	90	-	S
Dynamic Characteristics						
Input capacitance	C_{iss}	$V_{DS}=25V, V_{GS}=0V, f=1.0MHz$	-	14.8	-	nF
Output capacitance	C_{oss}		-	1830	-	pF
Reverse transfer capacitance	C_{rss}		-	55	-	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	$t_{d(on)}$	$V_{DS}=150V, I_D=70A, R_G=1\Omega, V_{GS}=10V$	-	30	-	ns
Turn-On rise time	t_r		-	30	-	ns
Turn-Off delay time	$t_{d(off)}$		-	100	-	ns
Turn-Off rise time	t_f		-	20	-	ns
Total Gate Charge	Q_g	$V_{DS}=150V, I_D=70A, V_{GS}=10V$	-	185	-	nC
Gate-Source charge	Q_{gs}		-	72	-	nC
Gate-Drain charge	Q_{gd}		-	60	-	nC
Drain-Source Diode Characteristics and Maximum Ratings						
Maximum Continuous Drain-Source Diode Forward Current	I_{SD}	$V_{GS}=0V, I_S=70A$	-	-	1.3	V
Diode Forward Current	I_S	$TC=25^{\circ}C$	-	-	140	A
Reverse recovery time	T_{rr}	$I_S=25A, DI/DT=100A/\mu S$	-	-	350	nS
Reverse recovery charge	Q_{rr}	μS	-	0.6	-	μC

Thermal Characteristic

Parameter	Symbol	Value	Unit
Thermal Resistance, junction to Case	$R_{th(j-C)}$	0.12	$^{\circ}C/W$

Notes:

1. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycles $\leq 2\%$

Electrical Characteristics

Fig. 1. Output Characteristics @ 25°C

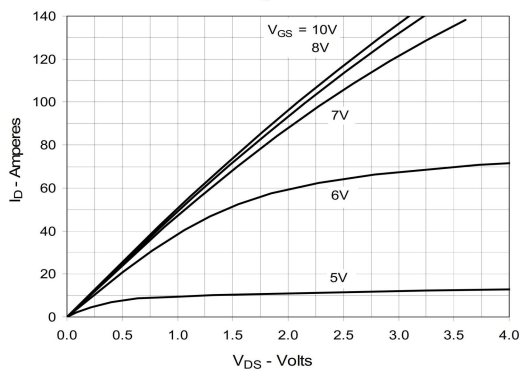


Fig. 2. Extended Output Characteristics @ 25°C

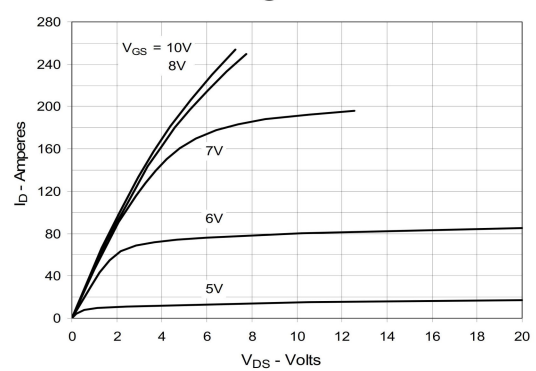


Fig. 3. Output Characteristics @ 125°C

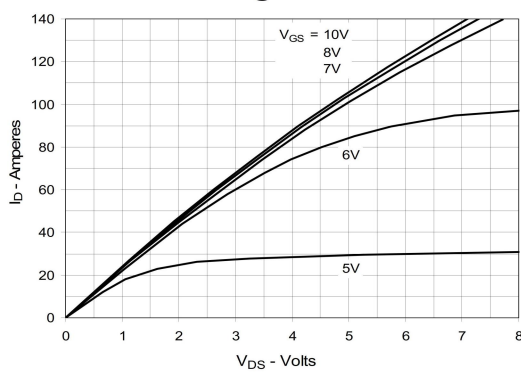


Fig. 4. $R_{DS(on)}$ Normalized to $I_D = 70A$ Value vs. Junction Temperature

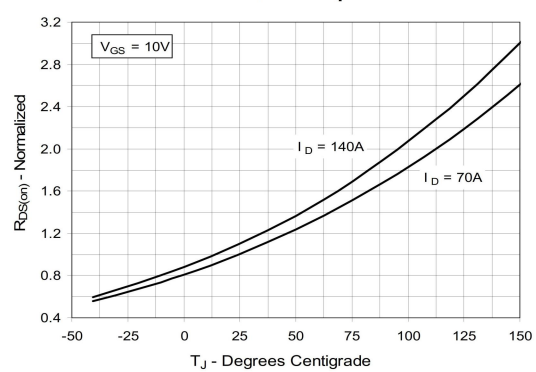


Fig. 5. $R_{DS(on)}$ Normalized to $I_D = 70A$ Value vs. Drain Current

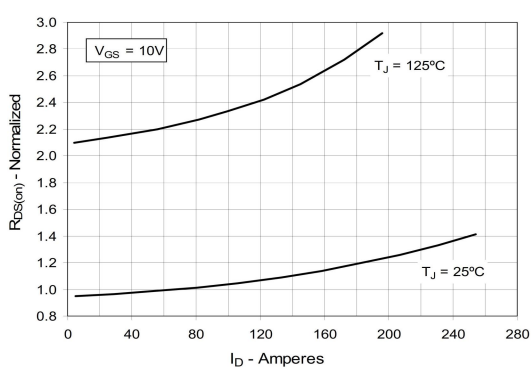


Fig. 6. Maximum Drain Current vs. Case Temperature

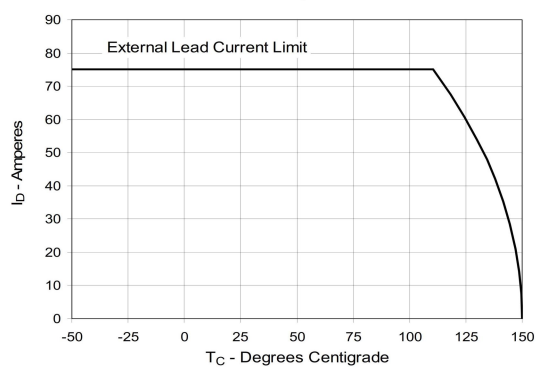


Fig. 7. Input Admittance

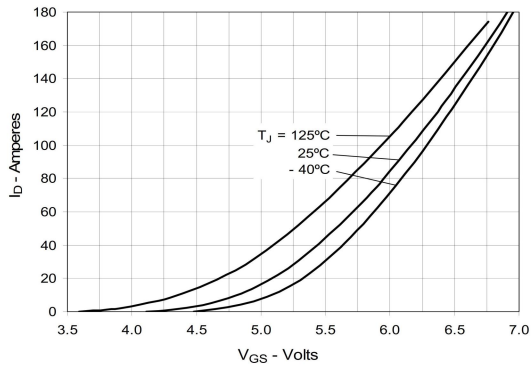


Fig. 8. Transconductance

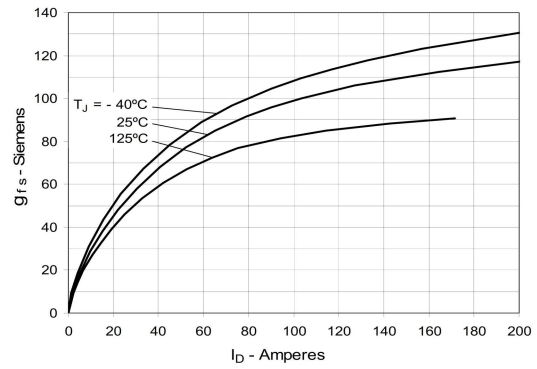


Fig. 9. Forward Voltage Drop of Intrinsic Diode

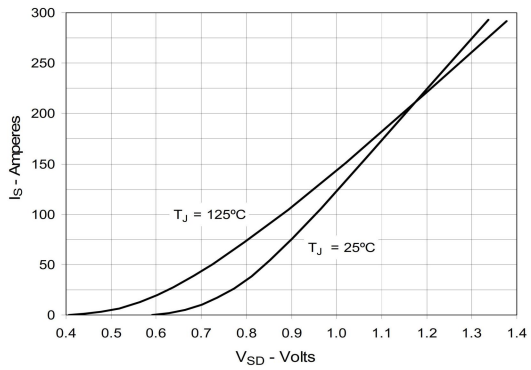


Fig. 10. Gate Charge

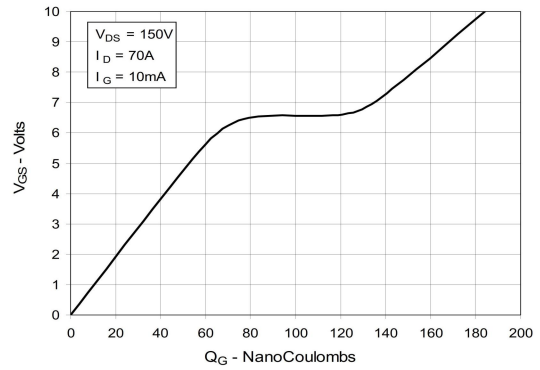


Fig. 11. Capacitance

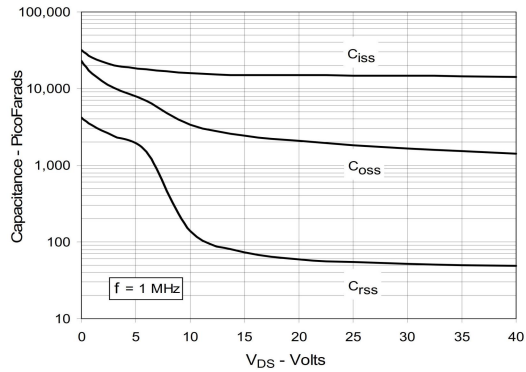


Fig. 12. Forward-Bias Safe Operating Area

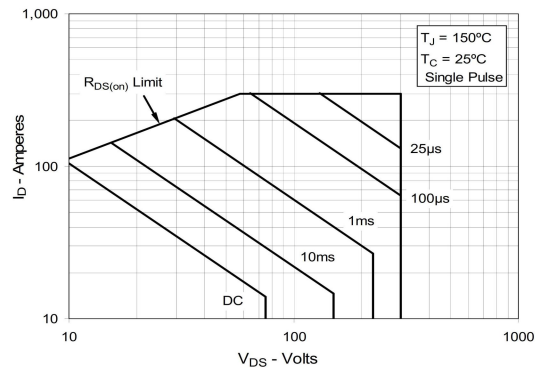
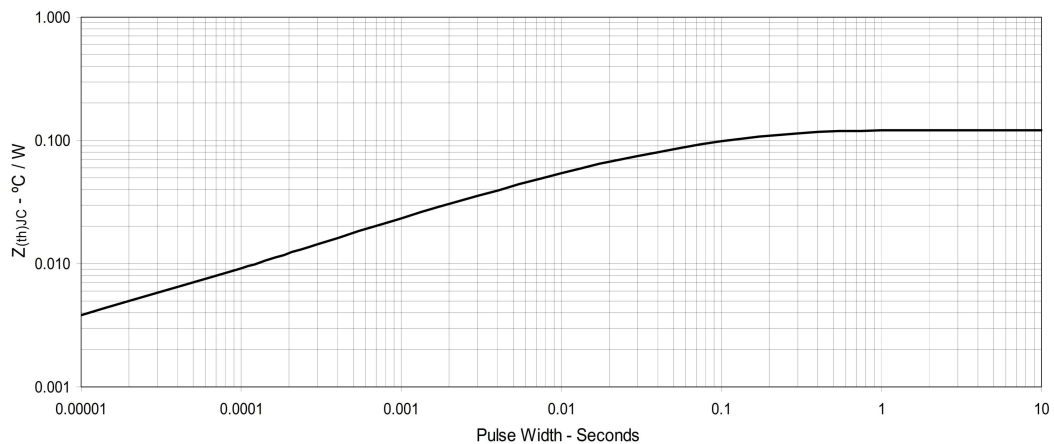
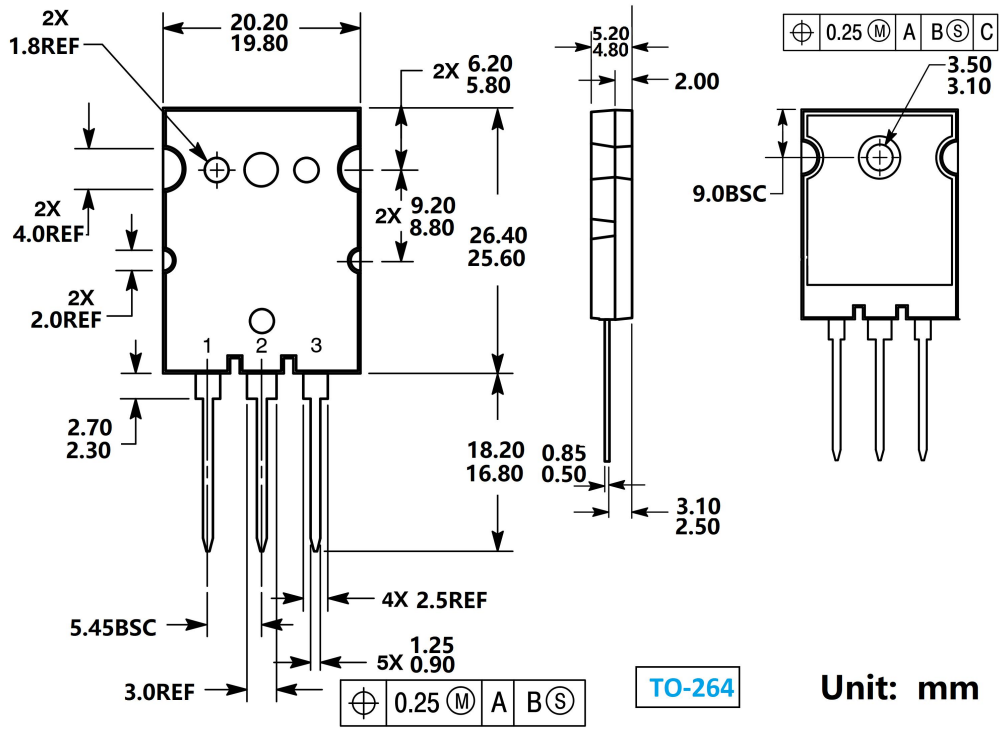


Fig. 13. Maximum Transient Thermal Impedance



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