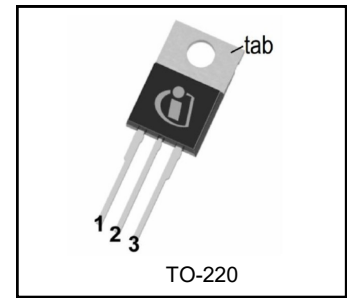
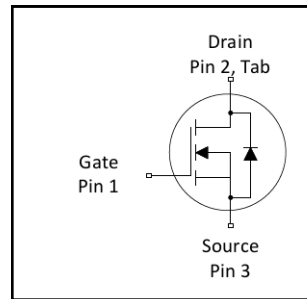


V_{DS} max	250V
V_{DS} (Avalanche) typ.	300V
R_{DS(ON)} typ. @ 10V	29mΩ
T_J max	175°C

Features

- Advanced Process Technology
- Key Parameters Optimized for PDP Sustain, Energy Recovery and Pass Switch Applications
- Low E_{PULSE} Rating to Reduce Power Dissipation in PDP Sustain, Energy Recovery and Pass Switch Applications
- Low Q_G for Fast Response
- High Repetitive Peak Current Capability for Reliable Operation
- Short Fall & Rise Times for Fast Switching
- 175°C Operating Junction Temperature for Improved Ruggedness
- Repetitive Avalanche Capability for Robustness and Reliability



G	D	S
Gate	Drain	Source

Description

This HEXFET Power MOSFET is specifically designed for Sustain; Energy Recovery and Pass switch applications in Plasma Display Panels. This MOSFET utilizes the latest processing techniques to achieve low on-resistance per silicon area and low E_{PULSE} rating. Additional features of this MOSFET are a 175°C junction operating temperature and high repetitive peak current capability. These features combine to make this MOSFET a highly efficient, robust and reliable device for PDP driving applications.

Base part number	Package Type	Standard Pack		Orderable Part Number
		Form	Quantity	
IRFB4332PbF	TO-220	Tube	50	IRFB4332PbF

Absolute Maximum Ratings

Symbol	Parameter	Max.	Units
V _{GS}	Gate-to-Source Voltage	± 30	V
I _D @ T _C = 25°C	Continuous Drain Current, V _{GS} @ 10V	60	A
I _D @ T _C = 100°C	Continuous Drain Current, V _{GS} @ 10V	42	
I _{DM}	Pulsed Drain Current ①	230	
I _{RP} @ T _C = 100°C	Repetitive Peak Current ⑤⑥	120	
P _D @ T _C = 25°C	Power Dissipation	390	W
P _D @ T _C = 100°C	Power Dissipation	200	
	Linear Derating Factor	2.6	W/°C
T _J	Operating Junction and	-55 to + 175	°C
T _{STG}	Storage Temperature Range		
	Soldering Temperature, for 10 seconds (1.6mm from case)	300	
	Mounting torque, 6-32 or M3 screw	10 lbf•in (1.1N•m)	

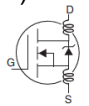
Thermal Resistance

Symbol	Parameter	Typ.	Max.	Units
R _{θJC}	Junction-to-Case ④	—	0.38	°C/W
R _{θCS}	Case-to-Sink, Flat, Greased Surface	0.50	—	
R _{θJA}	Junction-to-Ambient ④	—	62	

Notes ① through ⑥ are on page 2

Static @ $T_J = 25^\circ\text{C}$ (unless otherwise specified)

	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source Breakdown Voltage	250	—	—	V	$V_{GS} = 0V, I_D = 250\mu A$
$\Delta V_{(BR)DSS}/\Delta T_J$	Breakdown Voltage Temp. Coefficient	—	170	—	mV/ $^\circ\text{C}$	Reference to 25°C , $I_D = 1mA$
$R_{DS(on)}$	Static Drain-to-Source On-Resistance	—	29	33	m Ω	$V_{GS} = 10V, I_D = 35A$ ③
$V_{GS(th)}$	Gate Threshold Voltage	3.0	—	5.0	V	$V_{DS} = V_{GS}, I_D = 250\mu A$
$\Delta V_{GS(th)}/\Delta T_J$	Gate Threshold Voltage Temp. Coefficient	—	-14	—	mV/ $^\circ\text{C}$	
I_{DSS}	Drain-to-Source Leakage Current	—	—	20	μA	$V_{DS} = 250V, V_{GS} = 0V$
		—	—	1.0	mA	$V_{DS} = 250V, V_{GS} = 0V, T_J = 125^\circ\text{C}$
I_{GSS}	Gate-to-Source Forward Leakage	—	—	100	nA	$V_{GS} = 20V$
	Gate-to-Source Reverse Leakage	—	—	-100	nA	$V_{GS} = -20V$
g_{fs}	Forward Trans conductance	100	—	—	S	$V_{DS} = 25V, I_D = 35A$
Q_g	Total Gate Charge	—	99	150	nC	$I_D = 35A, V_{DS} = 125V$
Q_{gd}	Gate-to-Drain Charge	—	35	—		$V_{GS} = 10V$ ③
t_{st}	Shoot Through Blocking Time	100	—	—	ns	$V_{DD} = 200V, V_{GS} = 15V, R_G = 4.7\Omega$
E_{PULSE}	Energy per Pulse	—	520	—	μJ	$L = 220nH, C = 0.3\mu F, V_{GS} = 15V$ $V_{DS} = 200V, R_G = 5.1\Omega, T_J = 25^\circ\text{C}$
		—	920	—		$L = 220nH, C = 0.3\mu F, V_{GS} = 15V$ $V_{DS} = 200V, R_G = 5.1\Omega, T_J = 100^\circ\text{C}$
C_{iss}	Input Capacitance	—	5860	—	pF	$V_{GS} = 0V$
C_{oss}	Output Capacitance	—	530	—		$V_{DS} = 25V$
C_{rss}	Reverse Transfer Capacitance	—	130	—		$f = 1.0MHz$
$C_{oss\ eff.}$	Effective Output Capacitance	—	360	—		$V_{GS} = 0V, V_{DS} = 0V$ to $200V$
L_D	Internal Drain Inductance	—	4.5	—	nH	Between lead, 6mm (0.25in.) from package and center of die contact
L_S	Internal Source Inductance	—	7.5	—		

**Avalanche Characteristics**

	Parameter	Typ.	Max.	Units
E_{AS}	Single Pulse Avalanche Energy (Thermally Limited) ②	—	230	mJ
I_{AR}	Repetitive Avalanche Energy ①	—	39	mJ
$V_{DS(Avalanche)}$	Repetitive Avalanche Voltage ①	300	—	V
I_{AS}	Avalanche Current ①②	—	35	A

Diode Characteristics

	Parameter	Min.	Typ.	Max.	Units	Conditions
I_S @ $T_C = 25^\circ\text{C}$	Continuous Source Current (Body Diode)	—	—	60	A	MOSFET symbol showing the integral reverse p-n junction diode.
I_{SM}	Pulsed Source Current (Body Diode) ①	—	—	230		
V_{SD}	Diode Forward Voltage	—	—	1.3	V	$T_J = 25^\circ\text{C}, I_S = 35A, V_{GS} = 0V$ ③
t_{rr}	Reverse Recovery Time	—	190	290	ns	$T_J = 25^\circ\text{C}, I_F = 35A, V_{DD} = 50V$ $di/dt = 100A/\mu s$ ③
Q_{rr}	Reverse Recovery Charge	—	820	1230	nC	

Notes:

- ① Repetitive rating; pulse width limited by max. junction temperature.
- ② Starting $T_J = 25^\circ\text{C}$, $L = 0.39mH$, $R_G = 25\Omega$, $I_{AS} = 35A$.
- ③ Pulse width $\leq 300\mu s$; duty cycle $\leq 2\%$.
- ④ R_θ is measured at T_J approximately 90°C .
- ⑤ Half sine wave with duty cycle = 0.25, $t_{on} = 1\mu s$.
- ⑥ Applicable to Sustain and Energy Recovery applications.

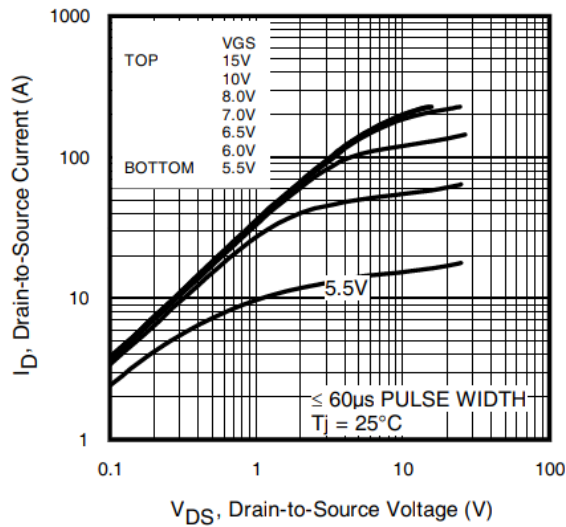


Fig. 1 Typical Output Characteristics

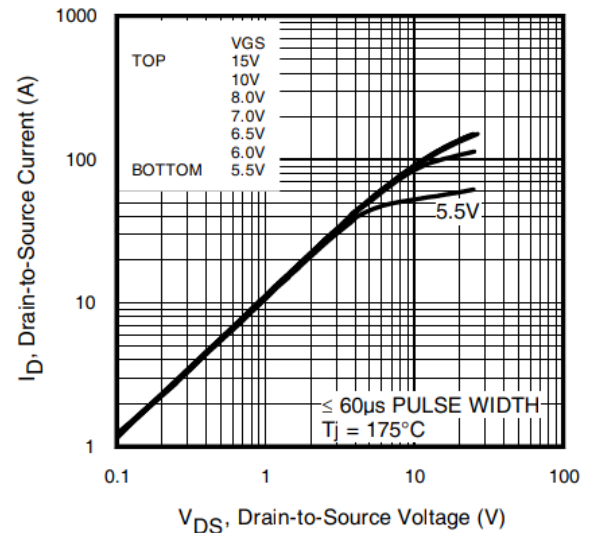


Fig. 2 Typical Output Characteristics

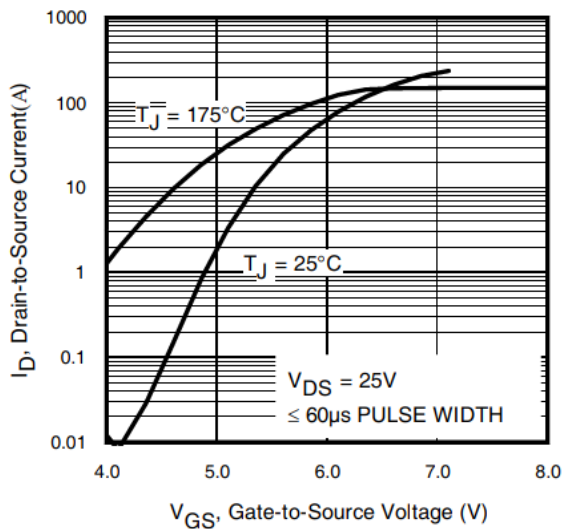


Fig. 3 Typical Transfer Characteristics

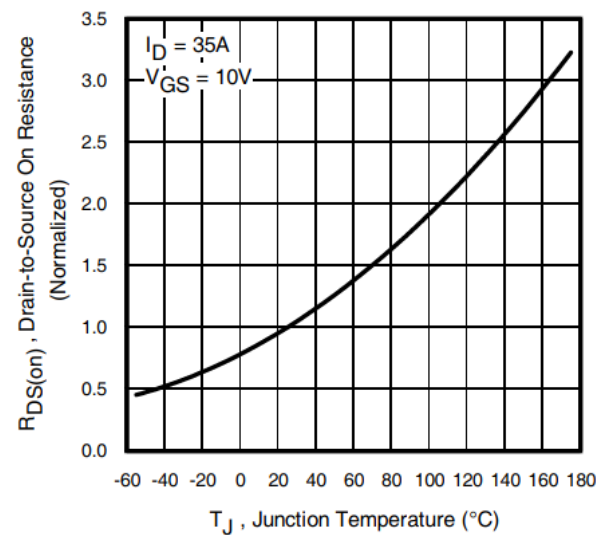


Fig. 4 Normalized On-Resistance vs. Temperature

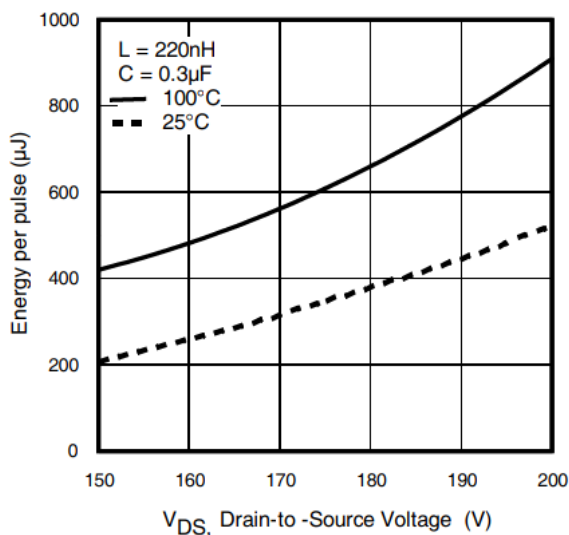


Fig 5. Typical E_{PULSE} vs. Drain-to-Source Voltage

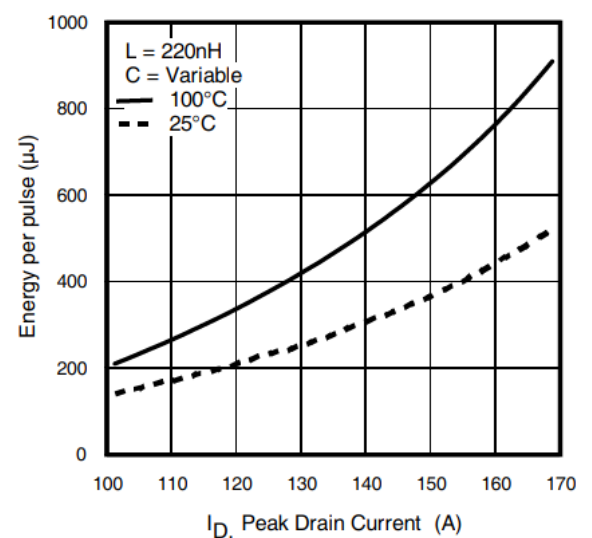


Fig 6. Typical E_{PULSE} vs. Drain Current

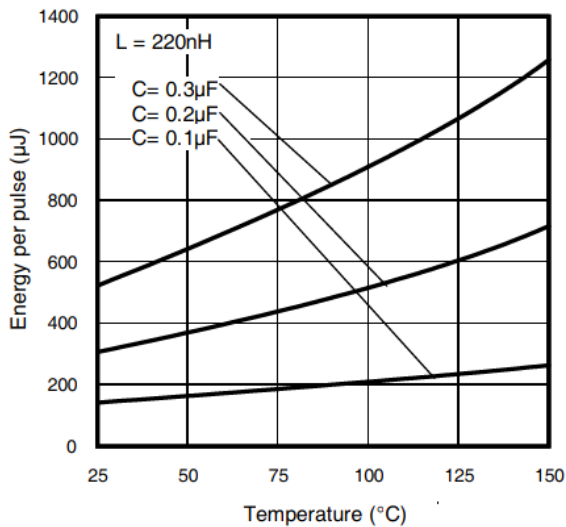


Fig. 7 Typical E_{PULSE} vs. Temperature

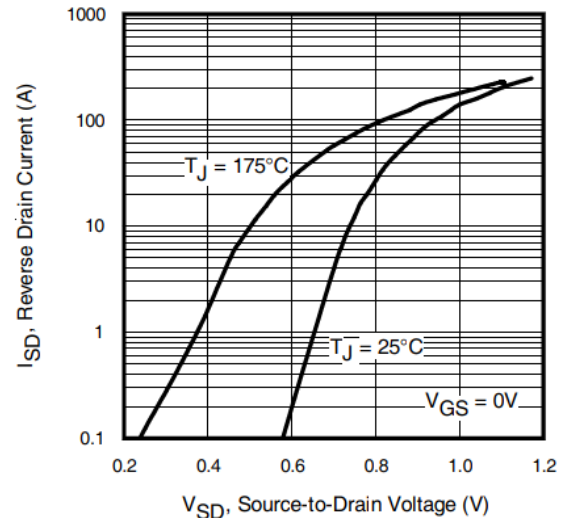


Fig. 8. Typical Source-Drain Diode Forward Voltage

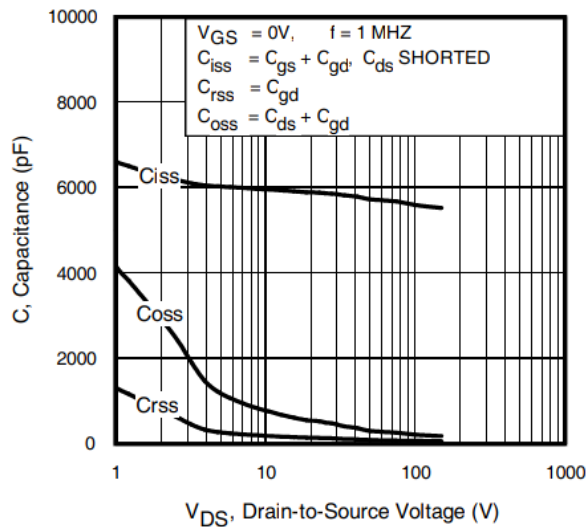


Fig 9. Typical Capacitance vs. Drain-to-Source Voltage

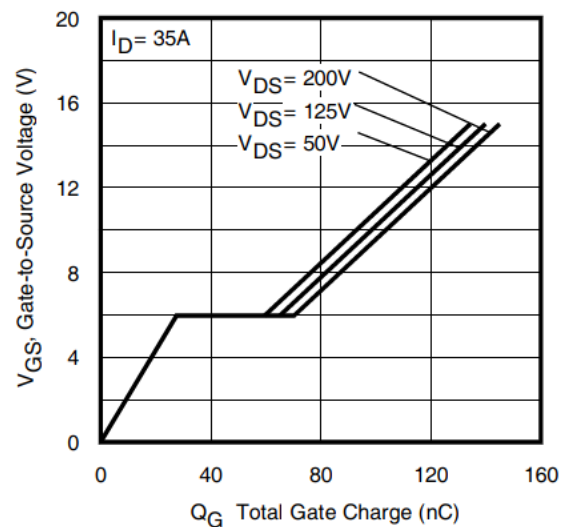


Fig 10. Typical Gate Charge vs. Gate-to-Source Voltage

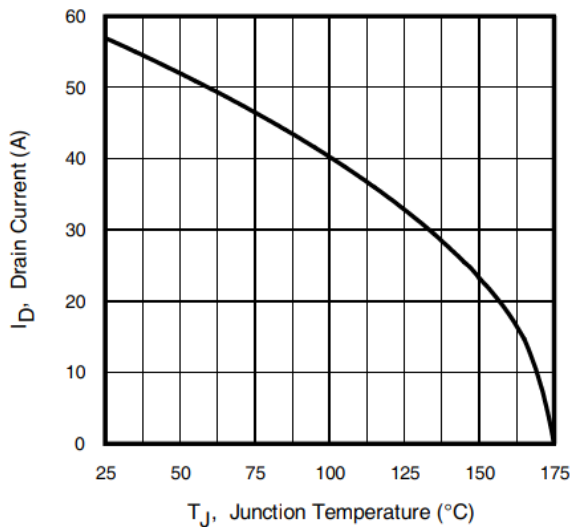


Fig 11. Maximum Drain Current vs. Case Temperature

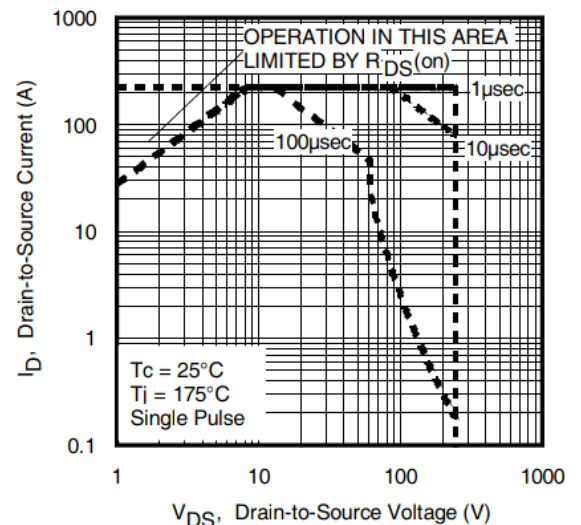


Fig 12. Maximum Safe Operating Area

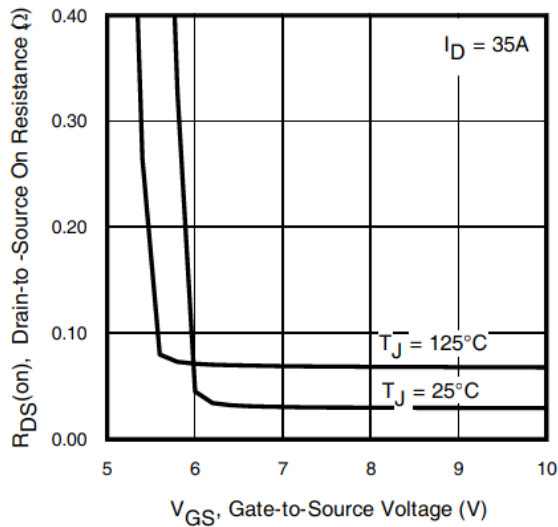


Fig. 13. On-Resistance Vs. Gate Voltage

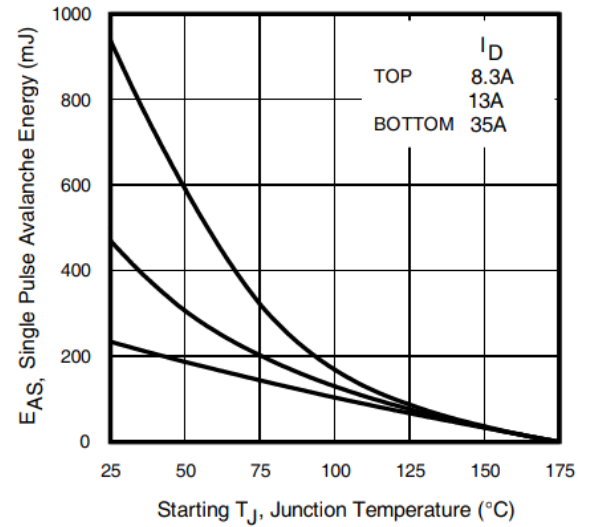


Fig 14. Maximum Avalanche Energy Vs. Temperature

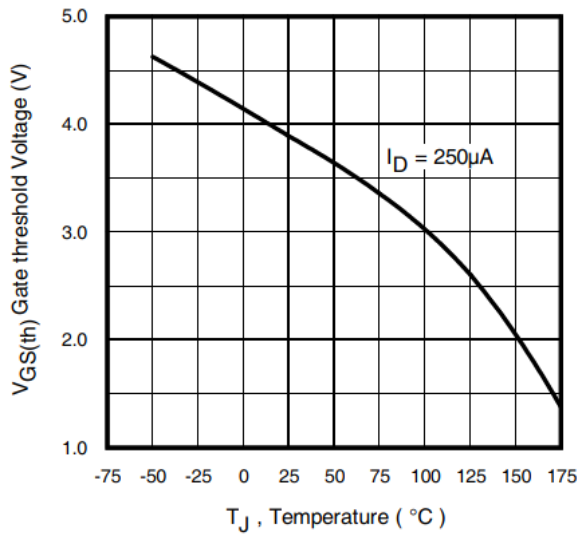


Fig 15. Threshold Voltage vs. Temperature

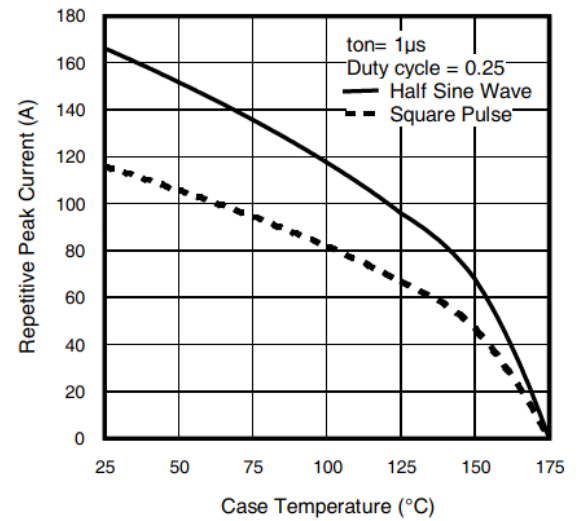


Fig 16. Typical Repetitive peak Current vs. Case temperature

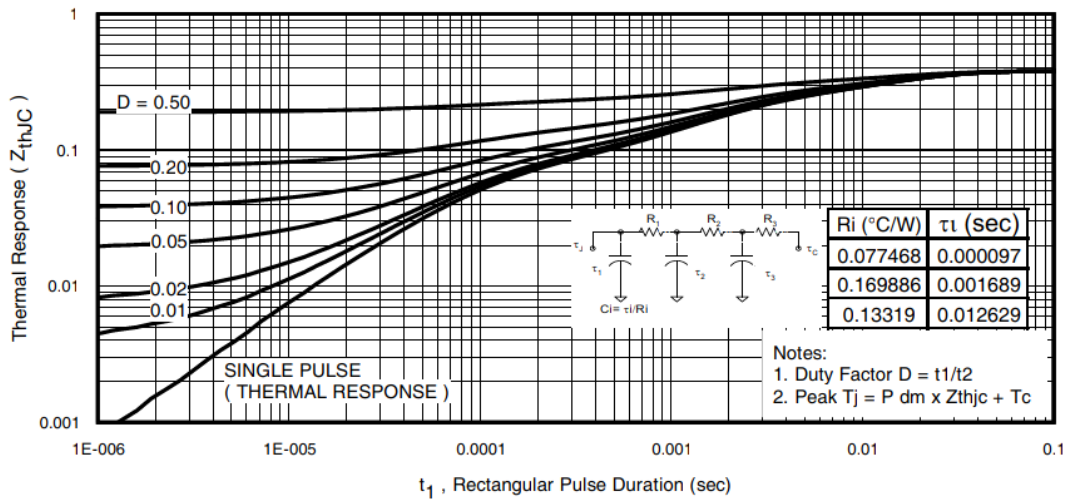


Fig 17. Maximum Effective Transient Thermal Impedance, Junction-to-Case

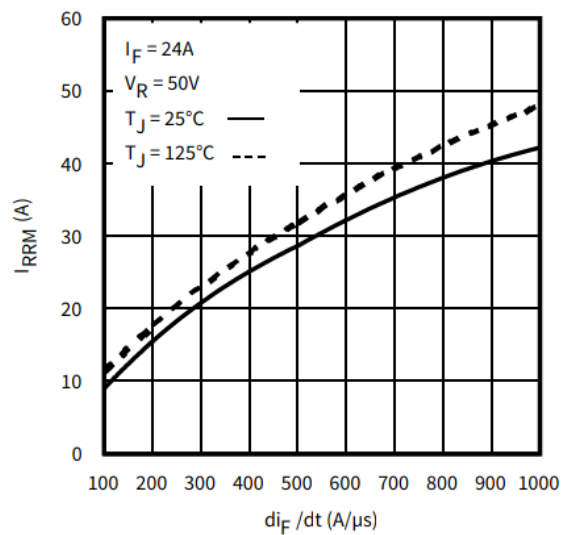


Fig. 18. Typical Recovery Current vs. di_F/dt

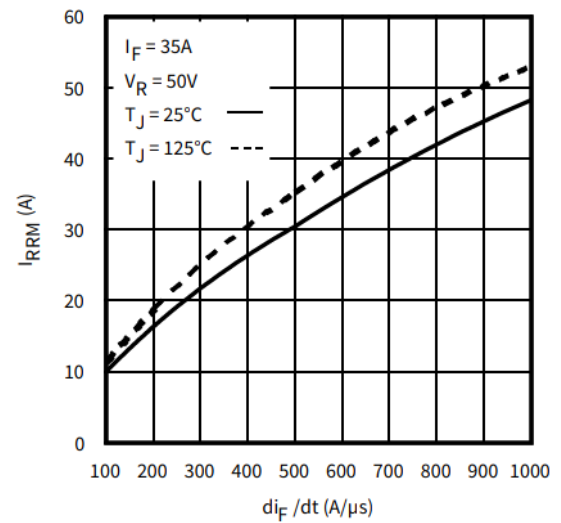


Fig 19. Typical Recovery Current vs. di_F/dt

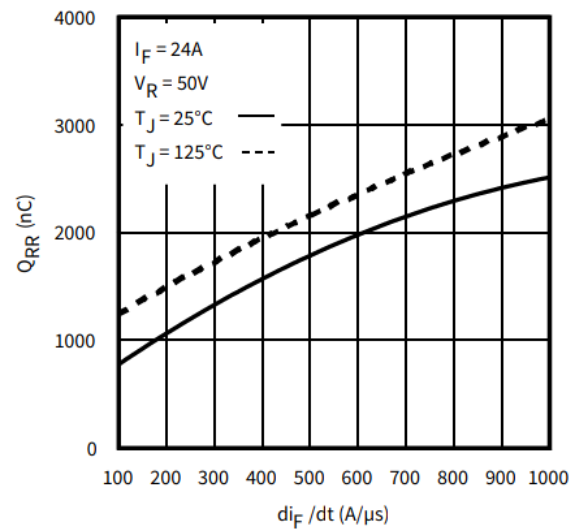


Fig 20. Typical Stored Charge vs. di_F/dt

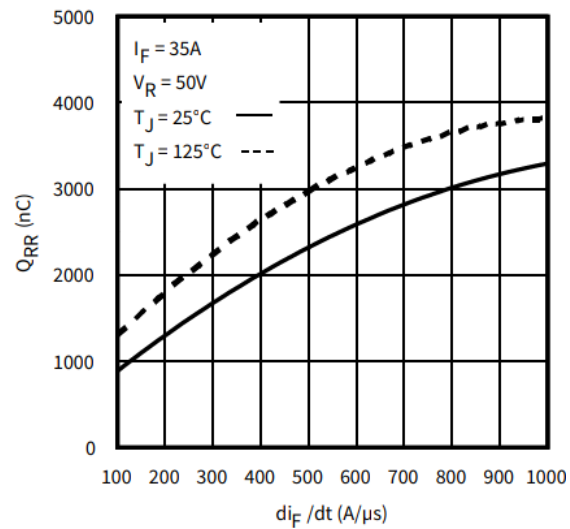


Fig 21. Typical Stored Charge vs. di_F/dt

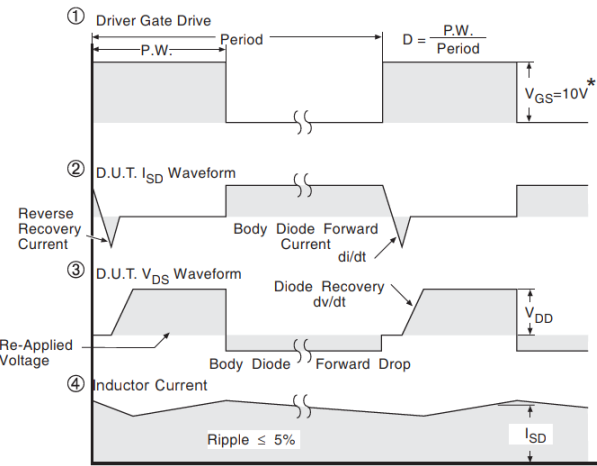
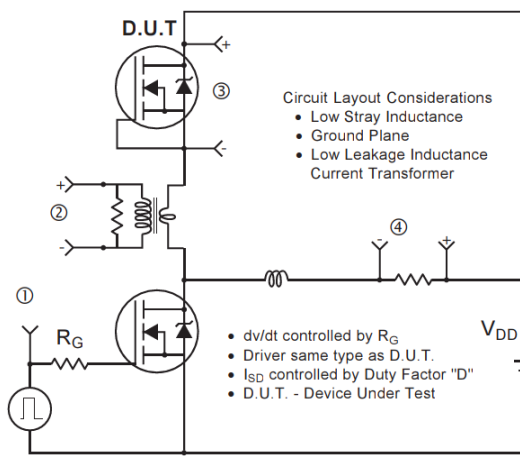


Fig 22. Peak Diode Recovery dv/dt Test Circuit for N-Channel HEXFET® Power MOSFETs

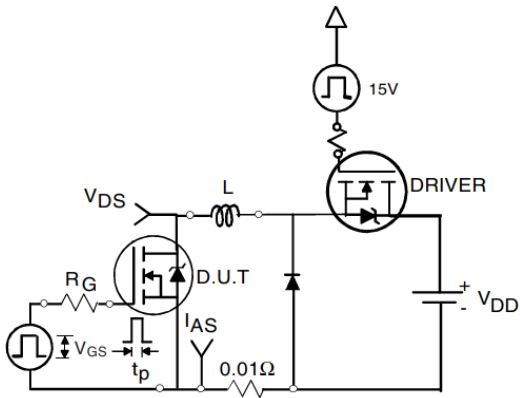


Fig 23a. Unclamped Inductive Test Circuit

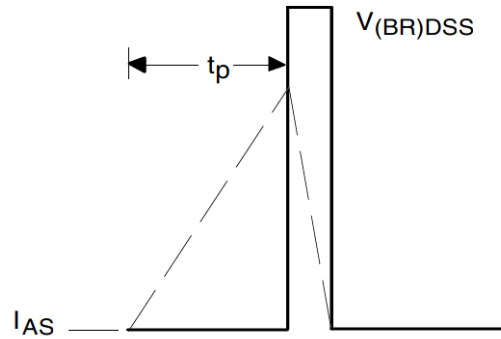


Fig 23b. Unclamped Inductive Waveforms

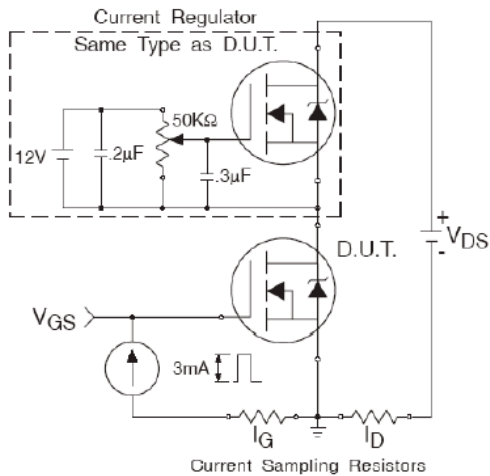


Fig 25a. Gate Charge Test Circuit

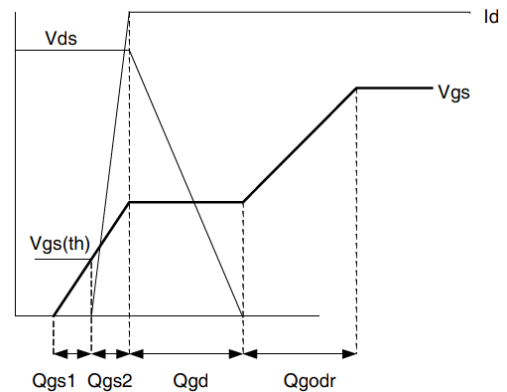


Fig 25b. Gate Charge Waveform

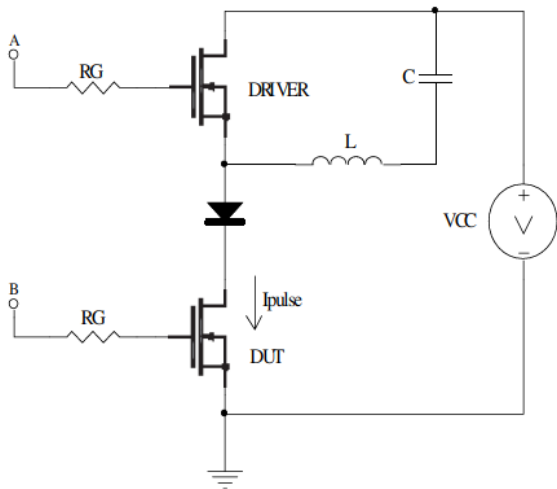


Fig 26a. t_{st} and E_{PULSE} Test Circuit

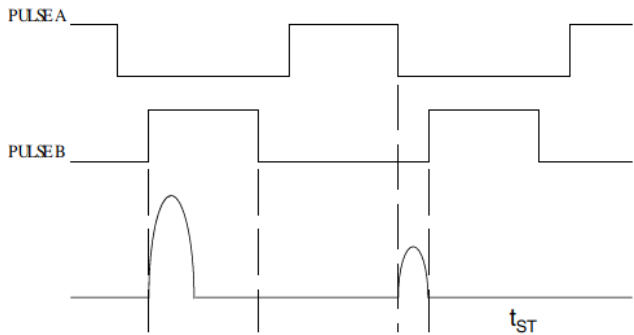


Fig 26b. t_{st} Test Waveforms

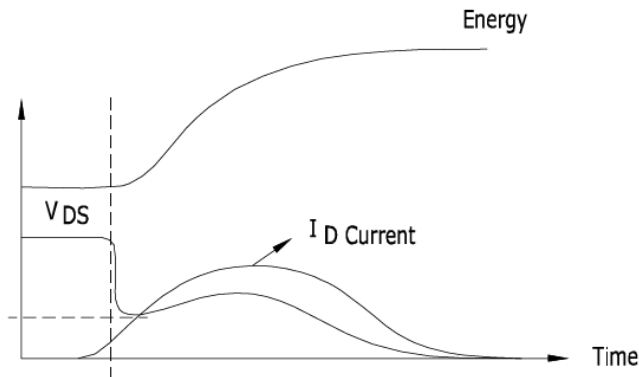


Fig 26c. E_{PULSE} Test Waveforms

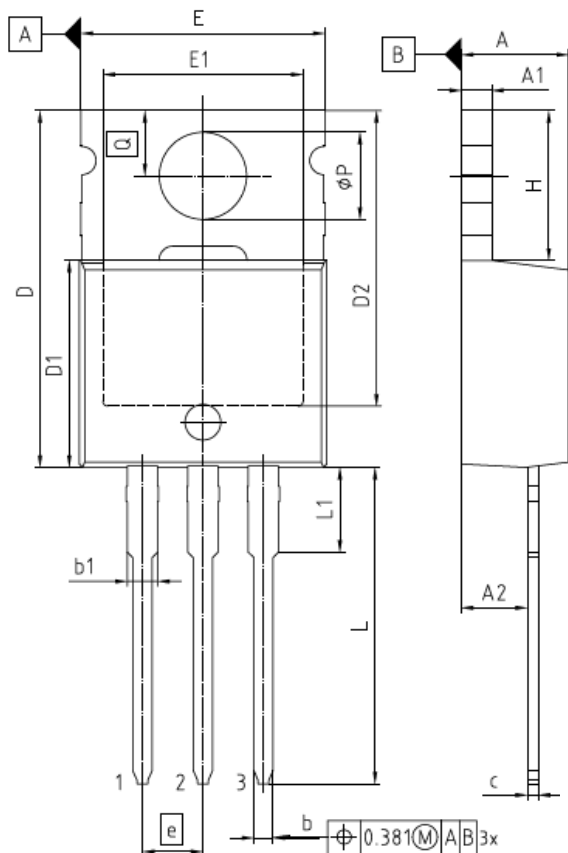
Qualification Information[†]

Qualification Level	Industrial (per JEDEC JESD47F) ^{††}	
Moisture Sensitivity Level	TO-220	N/A
RoHS Compliant	Yes	

[†] Qualification standards can be found at International Rectifier's web site: <https://www.infineon.com/>

^{††} Applicable version of JEDEC standard at the time of product release.

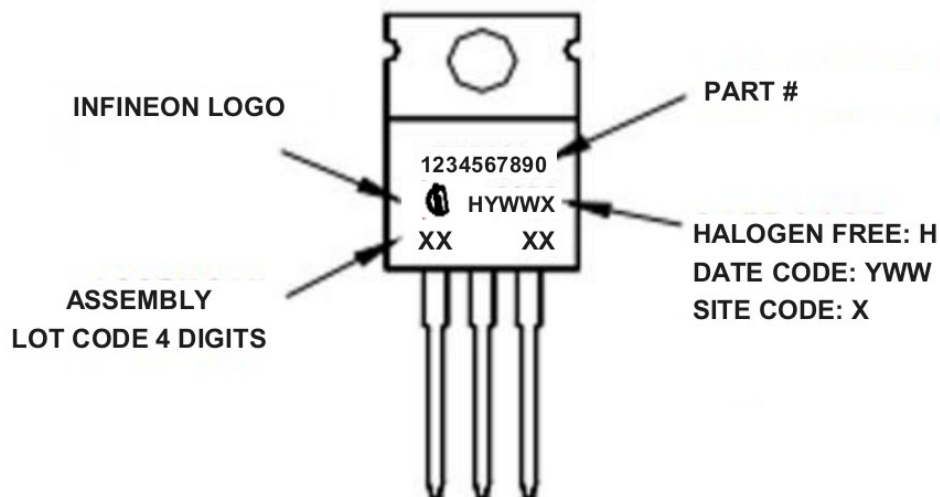
TO-220 Package Outline (Dimensions are shown in millimeters (inches))



NOTES:
DIMENSIONS DO NOT INCLUDE MOLD FLASH, PROTRUSION OR GATE BURRS
GATE BURRS ARE LESS THAN 0.5 mm

PACKAGE - GROUP NUMBER: PG-TO220-3-U05		
DIMENSIONS	MILLIMETERS	
	MIN.	MAX.
A	3.56	4.83
A1	1.14	1.40
A2	2.03	2.92
b	0.38	1.01
b1	1.14	1.78
c	0.36	0.61
D	14.22	16.51
D1	8.38	9.20
D2	11.68	12.88
E	9.65	10.67
E1	6.86	8.89
e	2.54	
N	3	
H	5.84	6.86
L	12.70	14.73
L1	3.56	4.06
øP	3.54	4.08
Q	2.54	3.42

TO-220 Part Marking Information



TO-220 packages are not recommended for Surface Mount Application.

Revision History

Date	Rev.	Comments
2026-09-18	2.1	- Update datasheet to Infineon format - Updated Package Outline and Part marking –page 9 - Added disclaimer on last page.

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