

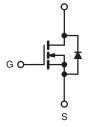


<b>D</b> Series	Power	MOSFET
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PRODUCT SUMMARY					
V <sub>DS</sub> (V) at T <sub>J</sub> max.	450				
R <sub>DS(on)</sub> max. at 25 °C (Ω)	V <sub>GS</sub> = 10 V 0.6				
Q <sub>g</sub> max. (nC)	30				
Q <sub>gs</sub> (nC)	4				
Q <sub>gd</sub> (nC)	7				
Configuration	Single				

## TO-220AB





N-Channel MOSFET

D

## FEATURES

- Optimal Design
  - Low Area Specific On-Resistance
  - Low Input Capacitance (C<sub>iss</sub>)
  - Reduced Capacitive Switching Losses
  - High Body Diode Ruggedness
  - Avalanche Energy Rated (UIS)
- Optimal Efficiency and Operation
  - Low Cost
  - Simple Gate Drive Circuitry
  - Low Figure-of-Merit (FOM): Ron x Qg
  - Fast Switching
- Material categorization: For definitions of compliance please see <u>www.vishay.com/doc?99912</u>

#### Note

Lead (Pb)-containing terminations are not RoHS-compliant. Exemptions may apply.

### **APPLICATIONS**

- Consumer Electronics
  - Displays (LCD or Plasma TV)
- Server and Telecom Power Supplies
- SMPS Industrial
  - Welding

  - Induction Heating
  - Motor Drives
- Battery Chargers

ORDERING INFORMATION	
Package	TO-220AB
Lead (Pb)-free	IRF740BPbF

<b>ABSOLUTE MAXIMUM RATINGS (T</b> <sub>C</sub>	= 25 °C, unless otherwis	se noted)			
PARAMETER		SYMBOL	LIMIT	UNIT	
Drain-Source Voltage		V <sub>DS</sub>	400		
Gate-Source Voltage			± 30	V	
Gate-Source Voltage AC (f > 1 Hz)	V <sub>GS</sub>	30			
Continuous Preis Current (T 150 °C)	$V_{GS}$ at 10 V $T_C = 25 °C$		10	А	
Continuous Drain Current ( $T_J = 150 \ ^{\circ}C$ )	$V_{GS}$ at 10 V $T_C = 100 \text{ °C}$	ID	6		
Pulsed Drain Current <sup>a</sup>	I <sub>DM</sub>	23			
Linear Derating Factor		1.2	W/°C		
Single Pulse Avalanche Energy <sup>b</sup>		E <sub>AS</sub>	194	mJ	
Maximum Power Dissipation	PD	147	W		
Operating Junction and Storage Temperature Range		T <sub>J</sub> , T <sub>stg</sub>	- 55 to + 150	°C	
Drain-Source Voltage Slope	T <sub>J</sub> = 125 °C		24	V/ns	
Reverse Diode dV/dt <sup>d</sup>		dV/dt	0.6	v/IIS	
Soldering Recommendations (Peak Temperature)	for 10 s		300 <sup>c</sup>	°C	

#### Notes

a. Repetitive rating; pulse width limited by maximum junction temperature.

b.  $V_{DD}$  = 50 V, starting T<sub>J</sub> = 25 °C, L = 2.3 mH, R<sub>g</sub> = 25  $\Omega$ , I<sub>AS</sub> = 13 A.

c. 1.6 mm from case.

d.  $I_{SD} \leq I_D,$  starting  $T_J$  = 25 °C.

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Static         Vois	THERMAL RESISTANCE RATI	NGS							
Maximum Junction-to-Case (Drain)         Rinx         -         0.85         "CW           SPECIFICATIONS (T <sub>J</sub> = 25 °C, unless otherwise noted)           PARAMETER         SYMBOL         TEST CONDITIONS         Min.         TYP.         MAX.         UN           Static         Drain-Source Breakdown Voltage $V_{OS}$ $V_{OS} = 0$ V, $I_D = 250 \mu$ A         400         -         -         V           Gate-Source Threshold Voltage (N) $V_{OS} = 0$ V, $I_D = 250 \mu$ A         3         -         5         V           Gate-Source Threshold Voltage (N) $V_{OS} = 0$ V, $V_{OS} = 0$ V         -         +         100         n/           Zero Gate Voltage Drain Current $I_{OS}$ $V_{OS} = 300$ V, $V_{OS} = 0$ V         -         -         10         µ/           Drain-Source On-State Resistance $P_{OS}(m)$ $V_{OS} = 300$ V, $V_{OS} = 0$ V, $V_{OS} = 10 \times V_{OS} = 10 \times V_{OS} = 100$ V, $I_D = 5$ A         -         0.5         0.6         0.           Duput Capacitance $C_{OSS}$ $V_{OS} = 0$ V, $V_{OS} = 0$ V to 320 V         -         66	PARAMETER	SYMBOL	TYP.		MAX.		UNIT		
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	Maximum Junction-to-Ambient	R <sub>thJA</sub>	- 62		20.04				
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	Maximum Junction-to-Case (Drain)	R <sub>thJC</sub>	- 0.85			- °C/W			
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$									
Static         VGS = 0 V, ID = 250 µA         400         -         -         V           Drain-Source Breakdown Voltage $V_{DS}$ Reference to 25 °C, ID = 250 µA         -         0.53         -         V/V           Gate-Source Ineshold Voltage (N)         VGS(h)         VDS = VGS, ID = 250 µA         3         -         5         V           Gate-Source Leakage         IGSS         VGS = 30 V         -         -         ±100 fn/           Zero Gate Voltage Drain Current         IDSS         VGS = 400 V, VGS = 0 V         -         -         10         µ/           Drain-Source On-State Resistance         Ros(n)         VGS = 50 V, ID = 5 A         -         0.5         0.6         0.6           Forward Transconductance         Gas         VDS = 50 V, ID = 5 A         -         2.7         -         S           Output Capacitance         Case         VDS = 0 V, VDS = 0 V, ID = 5 A         -         2.7         -         S           Input Capacitance         Cases         VGS = 0 V, VDS = 0 V, ID = 5 A         -         2.7         -         S           Input Capacitance         Cases         VGS = 0 V, VDS = 0 V, ID = 0 A, VGS = 10 V         -         15			1				I		
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	PARAMETER	SYMBOL	TES	T CONDIT	IONS	MIN.	TYP.	MAX.	UNIT
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Static								
Gate-Source Threshold Voltage (N)         V <sub>GS(th)</sub> V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250 µÅ         3         -         5         V           Gate-Source Leakage         I <sub>GSS</sub> V <sub>GS</sub> = ± 30 V         -         -         ± 100         n/           Zero Gate Voltage Drain Current         I <sub>DSS</sub> V <sub>DS</sub> = 400 V, V <sub>GS</sub> = 0 V         -         -         1         µ/           Drain-Source On-State Resistance         R <sub>DS(on)</sub> V <sub>DS</sub> = 320 V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 125 °C         -         10         µ/           Input Capacitance         G <sub>16s</sub> V <sub>DS</sub> = 50 V, I <sub>D</sub> = 5 Å         -         2.7         -         S           Output Capacitance         C <sub>clis</sub> V <sub>DS</sub> = 100 V,         I <sub>D</sub> = 5 Å         -         2.7         -         S           Reverse Transfer Capacitance         C <sub>clis</sub> V <sub>DS</sub> = 100 V,         -         59         -         -         9         -         -         15         30         -         166         -         9         -         15         30         -         15         30         -         15         30         -         16         36         -         15         30         -         16         16         -         16         -	Drain-Source Breakdown Voltage	V <sub>DS</sub>	V <sub>GS</sub> =	= 0 V, I <sub>D</sub> =	250 µA	400		-	V
	V <sub>DS</sub> Temperature Coefficient	$\Delta V_{DS}/T_J$	Reference	to 25 °C,	l <sub>D</sub> = 250 μA	-	0.53	-	V/°C
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Gate-Source Threshold Voltage (N)	V <sub>GS(th)</sub>	V <sub>DS</sub> =	= $V_{GS}$ , $I_D$ =	250 µA	3	-	5	V
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Gate-Source Leakage	I <sub>GSS</sub>		$V_{GS} = \pm 30$	V	-	-	± 100	nA
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Zava Cata Valtaga Drain Current		$V_{DS} = 400 \text{ V}, \text{ V}_{GS} = 0 \text{ V}$		-	-	1	_	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Zero Gale voltage Drain Current	IDSS	V <sub>DS</sub> = 320 V	/, V <sub>GS</sub> = 0 <sup>v</sup>	√, T <sub>J</sub> = 125 °C	-	-	10	μA
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Drain-Source On-State Resistance	R <sub>DS(on)</sub>	$V_{GS} = 10 V$		I <sub>D</sub> = 5 A	-	0.5	0.6	Ω
DynamicInput Capacitance $C_{18s}$ $V_{GS} = 0 V$ , $V_{DS} = 100 V$ , $f = 1 MHz$ $ 526$ $-$ Output Capacitance $C_{08s}$ $V_{OS} = 100 V$ , $f = 1 MHz$ $ 59$ $-$ Effective output capacitance, energy related <sup>0</sup> $C_{0(tr)}$ $V_{GS} = 0 V$ , $V_{DS} = 0 V to 320 V$ $ 666$ $-$ Effective output capacitance, time related <sup>0</sup> $C_{0(tr)}$ $V_{GS} = 0 V$ , $V_{DS} = 0 V to 320 V$ $ 666$ $-$ Total Gate Charge $Q_g$ $Q_{gs}$ $V_{GS} = 10 V$ $I_D = 5 A, V_{DS} = 320 V$ $ 4$ $-$ Gate-Drain Charge $Q_{gd}$ $Q_{gd}$ $V_{GS} = 10 V$ $I_D = 5 A, V_{DS} = 320 V$ $ 115$ $30$ Turn-On Delay Time $t_{d(cn)}$ $t_r$ $V_{OD} = 400 V, I_D = 10 A,$ $V_{GS} = 10 V, R_g = 9.1 \Omega$ $ 118$ $36$ Fail Time $t_r$ $V_{DD} = 400 V, I_D = 10 A,$ $V_{GS} = 10 V, R_g = 9.1 \Omega$ $ 114$ $28$ Gate Input Resistance $R_g$ $f = 1 MHz$ , open drain $ 1.8$ $36$ Pulsed Diode Characteristics $ 10 M_{CSFET} symbol$ showing the integral reverse $p - n junction diode$ $  10 M_{CS}$ Dide Forward Voltage $V_{SD}$ $T_J = 25 °C, I_S = 5 A, V_{GS} = 0 V$ $  1.2 V$ Reverse Recovery Time $t_{rr}$ $T_{rr}$ $ 230 - ms$ Reverse Recovery Charge $Q_{rr}$ $T_J = 25 °C, I_S = 5 A, V_{GS} = 0 V$ $  I_{rr$	Forward Transconductance	9 <sub>fs</sub>	V <sub>DS</sub>	s = 50 V, I <sub>D</sub>	= 5 A	-	2.7	-	S
Output CapacitanceCoss $V_{OS} = 100 \text{ V},$ f = 1 MHz $ 59$ $-$ Reverse Transfer Capacitance $C_{rss}$ $V_{OS} = 100 \text{ V},$ f = 1 MHz $ 59$ $-$ Effective output capacitance, energy related <sup>0</sup> $C_{o(er)}$ $V_{OS} = 0 \text{ V},$ $V_{DS} = 0 \text{ V} to 320 \text{ V}$ $ 666$ $-$ Effective output capacitance, time related <sup>0</sup> $C_{o(tr)}$ $V_{OS} = 0 \text{ V},$ $V_{DS} = 0 \text{ V} to 320 \text{ V}$ $ 666$ $-$ Total Gate Charge $Q_g$ $Q_g$ $V_{GS} = 10 \text{ V}$ $I_D = 5 \text{ A}, V_{DS} = 320 \text{ V}$ $ 44$ $-$ Gate-Drain Charge $Q_{gd}$ $V_{GS} = 10 \text{ V}$ $I_D = 5 \text{ A}, V_{DS} = 320 \text{ V}$ $ 44$ $ nd$ Gate-Drain Charge $Q_{gd}$ $V_{GS} = 10 \text{ V}$ $I_D = 5 \text{ A}, V_{DS} = 320 \text{ V}$ $ 18$ $36$ $-$ Turn-On Delay Time $t_d(on)$ $V_{GS} = 10 \text{ V}, \text{ Rg} = 9.1 \Omega$ $ 18$ $36$ $ 144$ $28$ Gate Input Resistance $R_g$ $f = 1 \text{ MHz}, open drain 1.8 \OmegaDrain-Source Body Diode CharacteristicsMOSFET symbolshowing theintegral reversep - n junction diode  10-Pulsed Diode Forward CurrentI_{SM}MOSFET symbolshowing theintegral reversep - n junction diode  10-Dide Forward VoltageV_{SD}T_J = 25 ^{\circ} C, I_F = I_S = 5 A,dI/dt = 100 A/\mu S, V_R = 25 \text{ V} -$	Dynamic					•	•		
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Input Capacitance	C <sub>iss</sub>		$V_{ee} = 0$	1	-	526	-	
Reverse Transfer Capacitance $C_{rss}$ $f = 1 \text{ MHz}$ $ 9$ $-$ Effective output capacitance, energy related <sup>0</sup> $C_{o(er)}$ $V_{GS} = 0 \text{ V},$ $V_{DS} = 0 \text{ V to } 320 \text{ V}$ $ 666$ $-$ Effective output capacitance, time related <sup>0</sup> $C_{o(tr)}$ $V_{GS} = 0 \text{ V},$ $V_{DS} = 0 \text{ V to } 320 \text{ V}$ $ 666$ $-$ Total Gate Charge $Q_g$ $Gate-Source ChargeQ_{gg}Q_{gd}V_{GS} = 10 \text{ V}I_D = 5 \text{ A}, V_{DS} = 320 \text{ V} 44-Gate-Drain ChargeQ_{gd}V_{GS} = 10 \text{ V}I_D = 5 \text{ A}, V_{DS} = 320 \text{ V} 44 ndTurn-On Delay Timet_{d(on)}T_rV_{GS} = 10 \text{ V}, I_D = 10 \text{ A},V_{GS} = 10 \text{ V}, R_g = 9.1 \Omega 1836-Turn-Off Delay Timet_{d(off)}r_fr_f 1428-Gate Input ResistanceR_gf = 1 \text{ MHz}, open drain 1.8 \OmegaPulsed Diode Forward CurrentI_SMOSFET symbolshowing theintegral reversep - n junction diode  10-Dide Forward VoltageV_{SD}T_J = 25 ^{\circ}C, I_S = 5 A, V_{GS} = 0 \text{ V}  1.2VReverse Recovery ChargeQ_{rr}T_J = 25 ^{\circ}C, I_F = I_S = 5A,dI/ct = 100 A/µS, V_R = 25 \text{ V} 1.6 1.6$	Output Capacitance		$V_{DS} = 100 V,$		-	59	-	-	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Reverse Transfer Capacitance				-	9	-		
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Effective output capacitance, energy	C <sub>o(er)</sub>			-	66	-	pF	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $		C <sub>o(tr)</sub>			-	84	-	1	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Total Gate Charge	Qq				-	15	30	
Gate-Drain Charge $Q_{gd}$ -7-Turn-On Delay Time $t_{d(on)}$ Rise Time $t_r$ Turn-Off Delay Time $t_r$ Turn-Off Delay Time $t_{d(off)}$ Fall Time $t_f$ Gate Input Resistance $R_g$ Gate Input Resistance $R_g$ Tarin-Source Body Diode CharacteristicsContinuous Source-Drain Diode Current $I_S$ Pulsed Diode Forward Current $I_S$ Diode Forward Voltage $V_{SD}$ Turn-Off Delay Time $t_r$ $I_S$ $T_J = 25  ^\circ C$ , $I_F = I_S = 5 A$ , $dI/dt = 100 A/\mus, V_R = 25 V$ $I_S$ $I_S = 0$ $I_S$ $I_S = 5  A, V_{GS} = 0  V$ $I_S$ $I_S = 25  ^\circ C, I_F = I_S = 5  A,$ $I_S$ $I_S = 0$ $I_S$ $I_S = 0$ $I_S$ $I_S = 0$ $I_S$ $I_S = 0$ $I_S$ $I_S = 0  V_S  I_S = 5  A, V_G = 0  V$ $I_S$ $I_S = 0  C, I_F = I_S = 5  A, V_G = 0  V$ $I_S$ $I_S = 0  C, I_F = 1  S = 5  A, V_S = 25  V$ $I_S$ $I_S = 0  C, I_F = 0  S = 5  A, V_S = 25  V$ $I_S$ $I_S = 0  C, I_S = 5  A, V_S = 25  V$ $I_S$ $I_S = 0  C, I_S = 5  A, V_S = 25  V$ $I_S$ $I_S = 0  C, I_S = 5  A, V_S = 25  V$ $I_S$ $I_S = 0  C, I_S = 5  A, V_S = 25  V$ $I_S$ $I_S = 0  C, I_S = 5  A, V_S = 25  V$ $I_S$ $I_S = 0  C,$	Gate-Source Charge		$V_{GS} = 10 V$ $I_D = 5 A, V_{DS} = 320 V$		-	4	-	nC	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Gate-Drain Charge	•				-	7	-	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Turn-On Delay Time				-	12	24		
Turn-Off Delay Time $t_{d(off)}$ $V_{DD} = 400 \text{ V}, \text{ Ip} = 10 \text{ A}, \text{ V}_{GS} = 10 \text{ V}, \text{ R}_{g} = 9.1 \Omega$ -1836Fall Time $t_{f}$ $r_{f}$ -1428Gate Input Resistance $R_{g}$ $f = 1 \text{ MHz}$ , open drain-1.8- $\Omega$ Drain-Source Body Diode CharacteristicsMOSFET symbol showing the integral reverse $p - n$ junction diode-10APulsed Diode Forward Current $I_{SM}$ $MOSFET symbol$ showing the integral reverse $p - n$ junction diode10ADiode Forward Voltage $V_{SD}$ $T_J = 25 \text{ °C}, I_S = 5 \text{ A}, V_{GS} = 0 \text{ V}$ 1.2VReverse Recovery Time $t_{rr}$ Reverse Recovery Charge $Q_{rr}$ $T_J = 25 \text{ °C}, I_F = I_S = 5 \text{ A}, V_{GS} = 25 \text{ V}$ -1.6- $\mu_{C}$	Rise Time		N .	400 \/ 1	- 10 4	-	18	36	
Fall Timetf-1428Gate Input ResistanceRgf = 1 MHz, open drain-1.8- $\Omega$ Drain-Source Body Diode CharacteristicsContinuous Source-Drain Diode CurrentIsMOSFET symbol showing the integral reverse p - n junction diode-10-10Pulsed Diode Forward CurrentIsMOSFET symbol showing the integral reverse p - n junction diode10-Diode Forward VoltageV_SDTJ = 25 °C, IS = 5 A, V_GS = 0 V1.2VReverse Recovery TimetrrTJ = 25 °C, IF = IS = 5 A, dl/dt = 100 A/µS, VB = 25 V-1.6-µO	Turn-Off Delay Time				-	18	36	ns	
Gate Input Resistance $R_g$ $f = 1 \text{ MHz}$ , open drain-1.8- $\Omega$ Drain-Source Body Diode CharacteristicsContinuous Source-Drain Diode Current $I_S$ MOSFET symbol showing the integral reverse $p - n$ junction diode10APulsed Diode Forward Current $I_{SM}$ $I_{SD}$ $T_J = 25 \ ^{\circ}C$ , $I_S = 5 \text{ A}$ , $V_{GS} = 0 \text{ V}$ 40ADiode Forward Voltage $V_{SD}$ $T_J = 25 \ ^{\circ}C$ , $I_S = 5 \text{ A}$ , $V_{GS} = 0 \text{ V}$ 1.2VReverse Recovery Time $t_{rr}$ $T_J = 25 \ ^{\circ}C$ , $I_F = I_S = 5 \text{ A}$ , dl/dt = 100 A/µs, $V_R = 25 \text{ V}$ -1.6- $\mu$	Fall Time	- (- )			-	14	28		
Drain-Source Body Diode CharacteristicsContinuous Source-Drain Diode CurrentIsMOSFET symbol showing the integral reverse $p - n$ junction diode10APulsed Diode Forward CurrentIsMIsMTJ = 25 °C, IS = 5 A, VGS = 0 V40Diode Forward VoltageVSDTJ = 25 °C, IS = 5 A, VGS = 0 V1.2VReverse Recovery TimetrrTJ = 25 °C, IF = IS = 5 A, dl/dt = 100 A/µS, VB = 25 V1.6-µC	Gate Input Resistance		f = 1 MHz. open drain		-	1.8	-	Ω	
Continuous Source-Drain Diode CurrentIsMOSFET symbol showing the integral reverse p - n junction diode-10APulsed Diode Forward CurrentIsmIsm $r_{J} = 25 \ ^{\circ}C$ , Is = 5 A, VGS = 0 V40ADiode Forward VoltageVspT_J = 25 \ ^{\circ}C, Is = 5 A, VGS = 0 V1.2VReverse Recovery TimetrrT_J = 25 \ ^{\circ}C, Is = 5 A, dl/dt = 100 A/µs, VB = 25 V1.6-µc	•	÷							
Pulsed Diode Forward CurrentIsmIntegra reverse p - n junction diode40Diode Forward Voltage $V_{SD}$ $T_J = 25 \ ^{\circ}C$ , $I_S = 5 A$ , $V_{GS} = 0 V$ 1.2VReverse Recovery Time $t_{rr}$ $T_J = 25 \ ^{\circ}C$ , $I_F = I_S = 5 A$ , dl/dt = 100 A/µs, $V_B = 25 V$ 1.6- $\mu c$	•		showing the integral reverse		-	-	10		
Reverse Recovery Time $t_{rr}$ $T_J = 25 \degree C, I_F = I_S = 5 \ A,$ -230-nsReverse Recovery Charge $Q_{rr}$ Induction Control Con	Pulsed Diode Forward Current	I <sub>SM</sub>			-	-	40	A	
Reverse Recovery Time $t_{rr}$ $T_J = 25 \degree C, I_F = I_S = 5 \ A,$ -230-nsReverse Recovery Charge $Q_{rr}$ Induction Control Con	Diode Forward Voltage	V <sub>SD</sub>	$T_{1} = 25 \text{ °C}, I_{S} = 5 \text{ A}, V_{GS} = 0 \text{ V}$		-	-	1.2	V	
Reverse Recovery Charge $Q_{rr}$ $T_J = 25 \ ^{\circ}C$ , $I_F = I_S = 5 \ ^{\circ}A$ , $dI/dt = 100 \ ^{\circ}A/\mu s$ , $V_R = 25 \ ^{\circ}V$ $ 1.6 \ ^{\circ}-\mu C$	· · · · · · · · · · · · · · · · · · ·					-	230	-	ns
di/dt = 100 A/µs, v <sub>R</sub> = 25 v			T <sub>J</sub> = 25 °C, $I_F = I_S = 5 A$ , dI/dt = 100 A/µs, $V_R = 25 V$		-		-	μC	
	, ,				-		-	A	

#### Notes

a.  $C_{oss(er)}$  is a fixed capacitance that gives the same energy as  $C_{oss}$  while  $V_{DS}$  is rising from 0 % to 80 %  $V_{DS}$ .

b.  $C_{oss(tr)}$  is a fixed capacitance that gives the same charging time as  $C_{oss}$  while  $V_{DS}$  is rising from 0 % to 80 %  $V_{DS}$ .

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## TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)

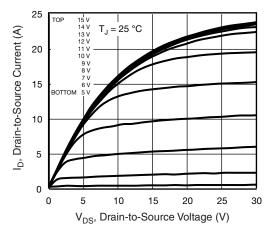


Fig. 1 - Typical Output Characteristics

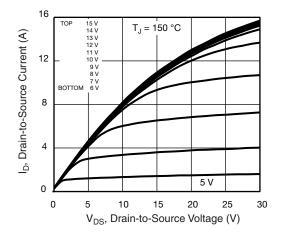


Fig. 2 - Typical Output Characteristics

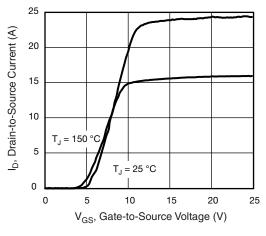


Fig. 3 - Typical Transfer Characteristics

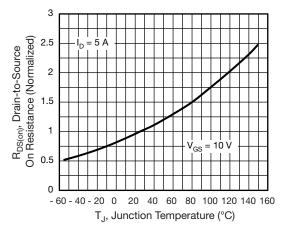


Fig. 4 - Normalized On-Resistance vs. Temperature

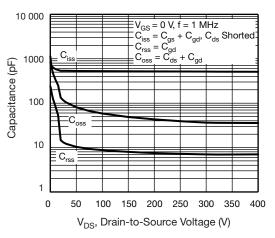


Fig. 5 - Typical Capacitance vs. Drain-to-Source Voltage

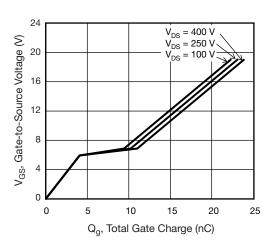


Fig. 6 - Typical Gate Charge vs. Gate-to-Source Voltage

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**IRF740B** 

**Vishay Siliconix** 

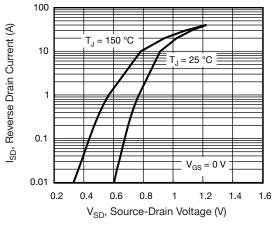
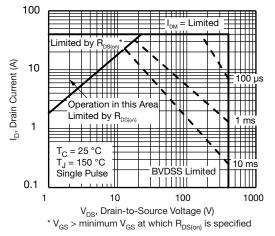


Fig. 7 - Typical Source-Drain Diode Forward Voltage





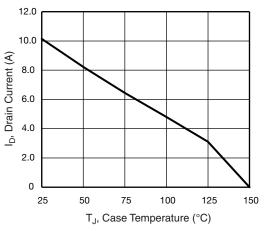


Fig. 9 - Maximum Drain Current vs. Case Temperature

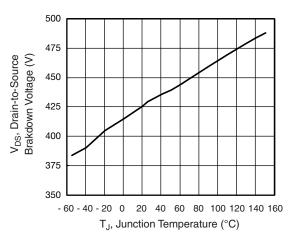
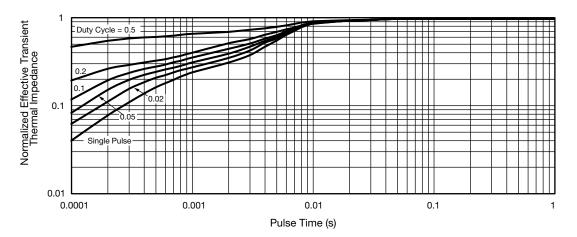


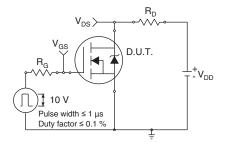
Fig. 10 - Temperature vs. Drain-to-Source Voltage





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Fig. 12 - Switching Time Test Circuit

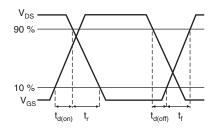


Fig. 13 - Switching Time Waveforms

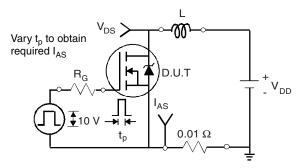


Fig. 14 - Unclamped Inductive Test Circuit

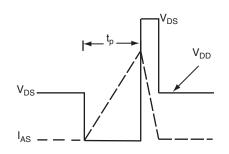


Fig. 15 - Unclamped Inductive Waveforms

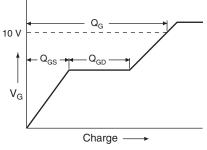


Fig. 16 - Basic Gate Charge Waveform

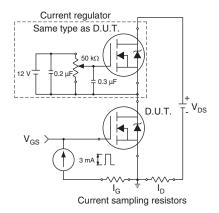


Fig. 17 - Gate Charge Test Circuit

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### Peak Diode Recovery dV/dt Test Circuit

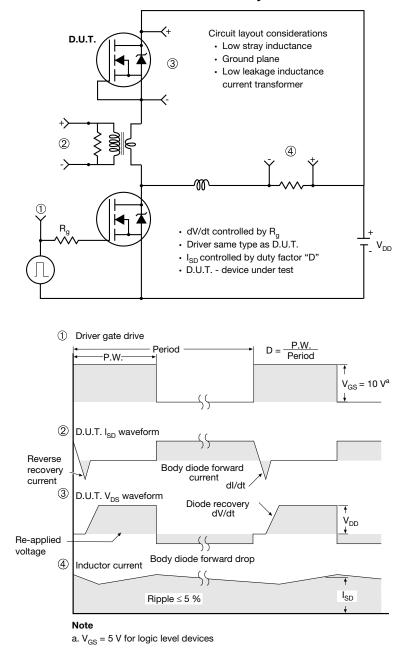


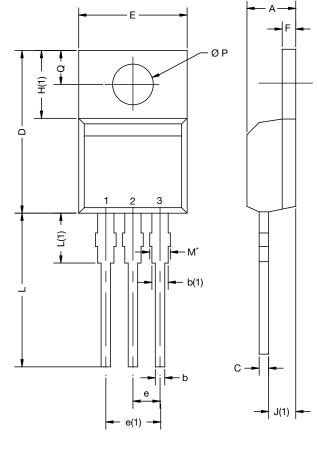
Fig. 18 - For N-Channel

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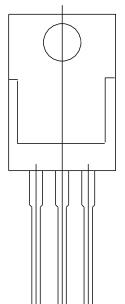


	MILLIMETERS		INCHES		
DIM.	MIN.	MAX.	MIN.	MAX.	
А	4.14	4.70	0.163	0.185	
b	0.69	1.02	0.027	0.040	
b(1)	1.14	1.73	0.045	0.068	
С	0.36	0.61	0.014	0.024	
D	14.33	15.85	0.564	0.624	
Е	9.96	10.52	0.392	0.414	
е	2.41	2.67	0.095	0.105	
e(1)	4.88	5.28	0.192	0.208	
F	0.43	1.40	0.017	0.055	
H(1)	6.10	6.48	0.240	0.255	
J(1)	2.41	2.92	0.095	0.115	
L	13.36	14.40	0.526	0.567	
L(1)	3.33	4.04	0.131	0.159	
ØΡ	3.53	3.94	0.139	0.155	
Q	2.59	3.00	0.102	0.118	
ECN: X15- DWG: 603 <sup>-</sup>	0003-Rev. A, I	19-Jan-15			

Notes

-  $M^{\star}$  = 0.052 inches to 0.064 inches (dimension including protrusion), heatsink hole for HVM

- Outline conforms to  $\mathsf{JEDEC}^{\circledast}$  outline TO-220AB with exception of dimension F



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