

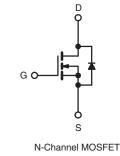
Vishay Siliconix



Power MOSFET

PRODUCT SUMMARY					
V _{DS} (V)	200				
R _{DS(on)} (Ω)	$V_{GS} = 10 V$	0.18			
Q _g (Max.) (nC)	70				
Q _{gs} (nC)	13				
Q _{gd} (nC)	39				
Configuration	Single				





FEATURES

- Dynamic dV/dt Rating
- Repetitive Avalanche Rated
- Isolated Central Mounting Hole
- Fast Switching
- Ease of Paralleling
- Simple Drive Requirements
- Compliant to RoHS Directive 2002/95/EC

DESCRIPTION

Third generation Power MOSFETs from Vishay provide the designer with the best combination of fast switching, ruggedized device design, low on-resistance and cost-effectiveness.

The TO-247AC package preferred for is commercial-industrial applications where higher power levels preclude the use of TO-220AB devices. The TO-247AC is similar but superior to the earlier TO-218 package because its isolated mounting hole. It also provides greater creepage distances between pins to meet the requirements of most safety specifications.

ORDERING INFORMATION	
Package	TO-247AC
Lead (Pb)-free	IRFP240PbF
	SiHFP240-E3
SnPb	IRFP240
	SiHFP240

ABSOLUTE MAXIMUM RATINGS ($\ensuremath{T_{C}}$	= 25 °C, unl	ess otherwis	se noted)			
PARAMETER			SYMBOL	LIMIT	UNIT	
Drain-Source Voltage			V _{DS}	200	v	
Gate-Source Voltage			V _{GS}	± 20	V	
Continuous Drain Current	V _{GS} at 10 V	T _C = 25 °C		20		
		$T_C = 100 \ ^\circ C$	I _D	12	А	
Pulsed Drain Current ^a			I _{DM}	80	1	
Linear Derating Factor				1.2	W/°C	
Single Pulse Avalanche Energy ^b			E _{AS}	E _{AS} 510		
Repetitive Avalanche Current ^a			I _{AR}	20	А	
Repetitive Avalanche Energy ^a	petitive Avalanche Energy ^a			15	mJ	
Maximum Power Dissipation	T _C =	25 °C	PD	150	W	
Peak Diode Recovery dV/dt ^c	k Diode Recovery dV/dt ^c			5.0	V/ns	
Operating Junction and Storage Temperature Range			T _J , T _{stg}	- 55 to + 150	0	
Soldering Recommendations (Peak Temperature)	for	10 s		300 ^d	- °C	
Mounting Torque	6-32 or M3 screw			10	lbf ∙ in	
				1.1	N·m	

Notes

a. Repetitive rating; pulse width limited by maximum junction temperature (see fig. 11).

b. $V_{DD} = 50 \text{ V}$, starting $T_J = 25 \text{ °C}$, L = 1.9 mH, $R_g = 25 \Omega$, $I_{AS} = 20 \text{ A}$ (see fig. 12). c. $I_{SD} \le 18 \text{ A}$, dl/dt $\le 150 \text{ A/µs}$, $V_{DD} \le V_{DS}$, $T_J \le 150 \text{ °C}$.

d. 1.6 mm from case.

* Pb containing terminations are not RoHS compliant, exemptions may apply

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Vishay Siliconix



Maximum Junction-to-Ambient $R_{H_{3}A}$ - 40 Case-to-Sink, Flat, Greased Surface $R_{H_{4}C}$ 0.24 - 0.83 SPECIFICATIONS (T_J = 25 °C, unless otherwise noted) Test conditionation to -Case (Drain) Max. UP Static Dian-Source Breakdown Voltage Vos Vos Vos Los (Conditionationationationationationationation	THERMAL RESISTANCE RATI	NGS							
Case-to-Sink, Flat, Greased Surface $R_{B,CS}$ 0.24 $ CAW$ Maximum Junction-to-Case (Drain) $R_{B,DC}$ $ 0.83$ $ 0.83$ SPECIFICATIONS ($T_J = 25 \ ^{\circ}C$, unless otherwise noted) PARAMETER SYMBOL TEST CONDITIONS Min. TVP. Maximum Junction-to-Case (Drain) SYMBOL TEST CONDITIONS Min. TYP. MAX. UN Static $V_{OS} = 0 \ V. \ I_D = 250 \ \mu A$ 2.0 $ 4.0$ N Gate-Source Inreshold Voltage $V_{OS} = TO V_{OS} = 0 \ V. \ I_D = 125 \ \mu A 2.0 4.0 N Zero Gate Voltage Drain Current Ibos V_{OS} = 100 \ V. \ V_{OS} = 0 \ V. \ I_D = 12 \ A^D 0.18 \ A^2 0.18 \ A^2 0 \ A^2 $	PARAMETER	SYMBOL	TYP.		MAX.		UNIT		
Maximum Junction-to-Case (Drain) Repuid - 0.83 SPECIFICATIONS ($T_{J} = 25$ °C, unless otherwise noted) PARAMETER SYMBOL TEST CONDITIONS MIN. TYP. MAX. UP SPECIFICATIONS ($T_{J} = 25$ °C, unless otherwise noted) Drain-Source Breakdown Voltage V _{DS} V _{OS} = 0 V, I _D = 250 µA 200 - - V/V Gate-Source Threshold Voltage V _{OS} V _{OS} = 0 V, I _D = 250 µA 2.0 - 4.0 V/V Gate-Source Leakage Iogss V _{OS} = 200 V, V _{OS} = 0 V - - 250 µ Zero Gate Voltage Drain Current Iogss V _{DS} = 100 V, V _{OS} = 0 V, I _D = 12 A ^b - - 0.18 C Drain-Source On-State Resistance Ro _{DS(PN)} V _{DS} = 50 V, I _D = 12 A ^b - - 0.18 C Drain-Source Clanace Cress V _{DS} = 10 V I _D = 12 A ^b - - 0.18 C Drain-Source Clanace Cress V _{DS} = 10 V I _D = 18 A, V _{DS} = 160 V, C	Maximum Junction-to-Ambient	R _{thJA}	- 40						
	Case-to-Sink, Flat, Greased Surface	R _{thCS}					°C/W		
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Static VDS	SPECIFICATIONS (T _J = 25 °C, u	nless otherw	ise noted)						
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	PARAMETER	SYMBOL	TEST (CONDITI	ONS	MIN.	TYP.	MAX.	UNIT
$\begin{split} & V_{DS} \mbox{ Temperature Coefficient} & \Delta V_{DS} \mbox{T}_J & \mbox{Reference to } 25 \ ^{\circ}{\rm C}, \mbox{I}_D = 1 \mbox{matrix} \mbox{M} \mb$	Static								
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Drain-Source Breakdown Voltage	V _{DS}	$V_{GS} = 0$	V, I _D = 25	50 µA	200	-	-	V
Gate-Source Leakage I - + 100 n Zero Gate Voltage Drain Current I _{DSS} V _{DS} = 200 V, V _{GS} = 0 V - - 25 µ Drain-Source On-State Resistance R _{DS(on)} V _{DS} = 100 V I _D = 12 A ^D - - 250 µ Forward Transconductance g _{Hs} V _{DS} = 50 V, I _D = 12 A ^D - - 0.18 6 Dynamic Input Capacitance C _{iss} V _{DS} = 50 V, I _D = 12 A ^D - - 0.18 6 Output Capacitance C _{iss} V _{DS} = 50 V, I _D = 12 A ^D - - 0.18 6 Output Capacitance C _{iss} V _{DS} = 50 V, I _D = 12 A ^D - - 0.1300 - Gate-Source Charge Q _g V _{DS} = 10 V I _D = 18 A, V _{DS} = 160 V, I _S = 10 V, I _S = 10 V, I _S = 160 V, I _S = 10 V, I _S = 160 V, I _S = 10 V, I _S = 10 V, I _S = 18 A, R _G = 9.1 \Omega, R_D = 5.4 \Omega, see fig. 10 ^D - 14 - Fail Time tr I Germ (0.25 ^O) - 13 - - 13 -	V _{DS} Temperature Coefficient	$\Delta V_{DS}/T_{J}$	Reference t	o 25 °C, I	_D = 1 mA	-	0.29	-	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	V _{GS(th)}	$V_{DS} = V_{C}$	_{3S} , I _D = 2	50 µA	2.0	-	4.0	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 _{GSS}				-	-	± 100	nA
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$			V _{DS} = 20	00 V, V _{GS}	= 0 V	-	-	25	
Forward Transconductance g_{fs} $V_{DS} = 50$ V, $I_{D} = 12$ A ^b 6.9 $ 50$ Dynamic Input Capacitance C_{css} $V_{GS} = 0$ V, $V_{DS} = 25$ V, $f = 1.0$ MHz, see fig. 5 $ 1300$ $ 400$ $ -$	Zero Gate voltage Drain Current	ro Gate Voltage Drain Current I_{DSS} $V_{DS} = 160 \text{ V}, \text{ V}_{GS} = 0 \text{ V},$	T _J = 125 °C	-	-	250	μA		
DynamicInput Capacitance C_{iss} Output Capacitance C_{oss} Output Capacitance C_{oss} Reverse Transfer Capacitance C_{rss} Total Gate Charge Q_g Q_{gs} $V_{GS} = 10 V$ $I_D = 18 A, V_{DS} = 160 V,$ see fig. 6 and 13b $ Total Gate ChargeQ_{gd}Q_{gd}V_{GS} = 10 VI_D = 18 A, V_{DS} = 160 V,see fig. 6 and 13b Turn-On Delay Timet_{d(on)}Rise Timet_rTurn-Off Delay Timet_{d(off)}Fall Timet_rInternal Drain InductanceL_DInternal Source InductanceL_SDrain-Source Body Diode CharacteristicsContinuous Source-Drain Diode CurrentI_SMOSFET symbolshowing theintegral reversep - n junction diodePulsed Diode Forward CurrentaI_SMBody Diode Reverse Recovery Timet_{rr}T_J = 25 °C, I_F = 18 A, dI/dt = 100 A/\mu s^bT_J = 25 °C, I_F = 18 A, dI/dt = 100 A/\mu s^b$	Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} = 10 V	١ _c) = 12 A ^b	-	-	0.18	Ω
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Forward Transconductance	9 _{fs}	$V_{DS} = 5$	0 V, I _D = ⁻	12 A ^b	6.9	-	-	S
Untraction Untrac	Dynamic								1
Output Capacitance C_{oss} $V_{DS} = 25 V$, f = 1.0 MHz, see fig. 5-400-pReverse Transfer Capacitance C_{rss} $f = 1.0 \text{ MHz}$, see fig. 5-400-pReverse Transfer Capacitance C_{rss} $V_{SS} = 10 \text{ V}$ $I_D = 18 \text{ A}$, $V_{DS} = 160 \text{ V}$, see fig. 6 and 13^b70Gate-Source Charge Q_{gd} $V_{GS} = 10 \text{ V}$ $I_D = 18 \text{ A}$, $V_{DS} = 160 \text{ V}$, see fig. 6 and 13^b13nGate-Drain Charge Q_{gd} $V_{GS} = 10 \text{ V}$ $I_D = 18 \text{ A}$, $V_{DS} = 160 \text{ V}$, see fig. 6 and 13^b14Turn-On Delay Time $t_{d(onf)}$ $V_{DD} = 100 \text{ V}$, $I_D = 18 \text{ A}$, $R_g = 9.1 \Omega$, $R_D = 5.4 \Omega$, see fig. 10^b-14Fall Time t_f V_{DD} Between lead, 6 mm (0.25") from package and center of die contact-5.0Internal Drain Inductance L_S $MOSFET$ symbol showing the integral reverse $p - n$ junction diode20/Pulsed Diode Forward Current* I_S $MOSFET$ symbol showing the integral reverse $p - n$ junction diode20/Body Diode Reverse Recovery Time t_{rr} $T_J = 25 \text{ °C}$, $I_F = 18 \text{ A}$, $dI/dt = 100 \text{ A}/\mu \text{s}^b$ 2.0VBody Diode Reverse Recovery Charge Q_{rr} $T_J = 25 \text{ °C}$, $I_F = 18 \text{ A}$, $dI/dt = 100 \text{ A}/\mu \text{s}^b$ 2.0 <td>Input Capacitance</td> <td>C_{iss}</td> <td colspan="2" rowspan="3">$V_{DS} = 25 V,$</td> <td>-</td> <td>1300</td> <td>-</td> <td rowspan="3">pF</td>	Input Capacitance	C _{iss}	$V_{DS} = 25 V,$		-	1300	-	pF	
Reverse Transfer Capacitance C_{rss} $f = 1.0 \text{ MHz}$, see fig. 5 - 130 - Total Gate Charge Q_g Q_g $V_{GS} = 10 \text{ V}$ $I_D = 18 \text{ A}, V_{DS} = 160 \text{ V},$ see fig. 6 and 13 ^b - - - 130 - Gate-Source Charge Q_{gd} $V_{GS} = 10 \text{ V}$ $I_D = 18 \text{ A}, V_{DS} = 160 \text{ V},$ see fig. 6 and 13 ^b - - - 39 Turn-On Delay Time $t_{d(on)}$ $R_g = 9.1 \Omega, R_D = 5.4 \Omega,$ see fig. 10 ^b - 14 - Turn-Off Delay Time $t_{d(off)}$ - 36 - - - 36 - Fall Time t_f I_D Between lead, 6 mm (0.25 ^o) from package and center of die contact - 5.0 - - 13 - Drain-Source Body Diode Characteristics I_S MOSFET symbol showing the integral reverse $p - n$ junction diode - - 20 / - - 80 / Pulsed Diode Forward Current ^a I_S $MOSFET$ symbol showing the integral reverse $p - n$ junction diode - -	Output Capacitance	C _{oss}			-	400	-		
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Reverse Transfer Capacitance				-	130	-		
Carles Outree ChargeClagesVGS = 10 Vsee fig. 6 and 13b13riGate-Drain Charge Q_{gd} Turn-On Delay Time $t_{d(on)}$ Rise Time t_r Turn-Off Delay Time $t_d(off)$ Fall Time t_r Fall Time t_f Internal Drain Inductance L_D Internal Source Inductance L_S Drain-Source Body Diode CharacteristicsContinuous Source-Drain Diode CurrentIsNusse Fig. 10b $f_J = 25 °C$, $I_S = 20 A$, $V_{GS} = 0 V^b$ Pulsed Diode Forward Currenta I_{rr} Body Diode Reverse Recovery Time t_{rr} Body Diode Reverse Recovery Charge Q_{rr} Turn-Body Diode Reverse Recovery Charge Q_{rr} Continuous Source Recovery Charge Q_{rr}	Total Gate Charge	Qg					70	nC	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Gate-Source Charge	Q _{gs}	$V_{GS} = 10 V$ $I_D = 18 A, V_{DS} = 1$		A, $V_{DS} = 160 V$,	-	-		13
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Gate-Drain Charge			300 11	g. o and to	-	-	39	1
Turn-Off Delay Time $t_{d(off)}$ $R_g = 9.1 \Omega, R_D = 5.4 \Omega,$ see fig. 10^b -45-Fall Time t_f -36-Internal Drain Inductance L_D Between lead, 6 mm (0.25") from package and center of die contact-5.0-Internal Source Inductance L_S MOSFET symbol showing the integral reverse $p - n$ junction diode-13-Pulsed Diode Forward CurrentaIs I_{SM} MOSFET symbol showing the integral reverse $p - n$ junction diode20Body Diode Reverse Recovery Time V_{SD} $T_J = 25$ °C, $I_F = 18$ A, $dI/dt = 100$ A/µsb2.0N $T_J = 25$ °C, $I_F = 18$ A, $dI/dt = 100$ A/µsb-3.47.1µ	Turn-On Delay Time					-	14	-	
Turn-Off Delay Time $t_{d(off)}$ $H_g = 5.152, H_D = 3.452, grad stress and the see fig. 10^b 45-Fall Timet_frr36 36-Internal Drain InductanceL_DBetween lead, 6 mm (0.25") from package and center of die contact 5.0 13 13 13 13 13 13 13 13 13 13 13 13 13 13 13 -$	Rise Time	t _r	$R_{g} = 9.1 \Omega, R_{D} = 5.4 \Omega,$		-	51	-	- ns	
Fall Timetr-36-Internal Drain Inductance L_D Between lead, 6 mm (0.25") from package and center of die contact-5.0-Internal Source Inductance L_S Between lead, 6 mm (0.25") from package and center of die contact-13-Drain-Source Body Diode CharacteristicsContinuous Source-Drain Diode CurrentIsMOSFET symbol showing the integral reverse p - n junction diode20///////////////////////////////	Turn-Off Delay Time	t _{d(off)}			-	45	-		
Internal Drain HuddetanceLD6 mm (0.25") from package and center of die contact-3.0-nInternal Source InductanceLS6 mm (0.25") from package and center of die contact-13-nDrain-Source Body Diode CharacteristicsMOSFET symbol showing the integral reverse p - n junction diode-13-13-Pulsed Diode Forward CurrentaIs SourceMOSFET symbol showing the integral reverse p - n junction diode20ABody Diode VoltageV_SDT_J = 25 °C, I_S = 20 A, V_{GS} = 0 Vb2.0ABody Diode Reverse Recovery Timetrr Tr Body Diode Reverse Recovery ChargeT_rT_J = 25 °C, I_F = 18 A, dI/dt = 100 A/µsb-3.47.1µ	Fall Time				-	36	-		
Internal Source InductanceL_Spackage and center of die contact-13-Drain-Source Body Diode CharacteristicsContinuous Source-Drain Diode CurrentISMOSFET symbol showing the integral reverse p - n junction diode20Pulsed Diode Forward CurrentaISM $P_J = 25 \ ^{\circ}C$, IS = 20 A, VGS = 0 Vb80Body Diode VoltageVSDTJ = 25 \ ^{\circ}C, IS = 20 A, VGS = 0 Vb2.0MBody Diode Reverse Recovery Time t_{rr} $T_J = 25 \ ^{\circ}C$, IF = 18 A, dI/dt = 100 A/µsb-3.00610nnBody Diode Reverse Recovery Charge Q_{rr} Q_{rr} -3.47.1µ	Internal Drain Inductance	L _D	6 mm (0.25") from package and center of		-	5.0	-	nH	
Continuous Source-Drain Diode CurrentIsMOSFET symbol showing the integral reverse p - n junction diode20Pulsed Diode Forward CurrentaIsm P_{SD} $T_J = 25 \ ^{\circ}C$, $I_S = 20 \ ^{\circ}A$, $V_{GS} = 0 \ V^b$ 80Body Diode Voltage V_{SD} $T_J = 25 \ ^{\circ}C$, $I_S = 20 \ ^{\circ}A$, $V_{GS} = 0 \ V^b$ 2.0 N_{SD} Body Diode Reverse Recovery Time t_{rr} $T_J = 25 \ ^{\circ}C$, $I_F = 18 \ ^{\circ}A$, $dI/dt = 100 \ ^{\circ}A/\mu s^b$ 3.47.1 μ	Internal Source Inductance	L _S			-	13	-		
Continuous Source-Drain Diode CurrentIs Is showing the integral reverse p - n junction diodeshowing the integral reverse p - n junction diode20Pulsed Diode Forward CurrentaIsmIsmTJ = 25 °C, Is = 20 A, VGS = 0 Vb80Body Diode VoltageVsDTJ = 25 °C, Is = 20 A, VGS = 0 Vb2.0VBody Diode Reverse Recovery TimetrrTJ = 25 °C, IF = 18 A, dI/dt = 100 A/µsb-300610nTJ = 25 °C, IF = 18 A, dI/dt = 100 A/µsb-3.47.1µ	Drain-Source Body Diode Characteristic	s							
Pulsed Diode Forward CurrentaI I SMI I SMI I P - n junction diodeI I I I S80Body Diode VoltageV SDT T I 2.0T S S ST S S S S80Body Diode Reverse Recovery Timetrr trrT T S S S S S S C S <br< td=""><td>Continuous Source-Drain Diode Current</td><td>I_S</td><td colspan="2" rowspan="2">showing the integral reverse</td><td>-</td><td>-</td><td>20</td><td>^</td></br<>	Continuous Source-Drain Diode Current	I _S	showing the integral reverse		-	-	20	^	
Body Diode Reverse Recovery Time t_{rr} $T_J = 25 \text{ °C}, I_F = 18 \text{ A}, dI/dt = 100 \text{ A/}\mu\text{s}^b$ -300610nBody Diode Reverse Recovery Charge Q_{rr} $T_J = 25 \text{ °C}, I_F = 18 \text{ A}, dI/dt = 100 \text{ A/}\mu\text{s}^b$ -3.47.1 μ	Pulsed Diode Forward Current ^a	I _{SM}			-	-	80		
Body Diode Reverse Recovery Charge Q_{rr} $T_J = 25 \ ^{\circ}C, I_F = 18 \ A, dl/dt = 100 \ A/\mu s^b$ - 3.4 7.1 μ	Body Diode Voltage	V _{SD}	$T_{J} = 25 \text{ °C}, I_{S} = 20 \text{ A}, V_{GS} = 0 \text{ V}^{b}$			-	-	2.0	V
Body Diode Reverse Recovery Charge Q _{rr} - 3.4 7.1 µ	Body Diode Reverse Recovery Time	t _{rr}			-	300	610	ns	
Forward Turn-On Time ton Intrinsic turn-on time is negligible (turn-on is dominated by L _S and L _D)	Body Diode Reverse Recovery Charge	Q _{rr}			-	3.4	7.1	μC	
	Forward Turn-On Time	t _{on}	Intrinsic turn-on time is negligible (turn			-on is dor	minated b	y L _S and	L _D)

Notes

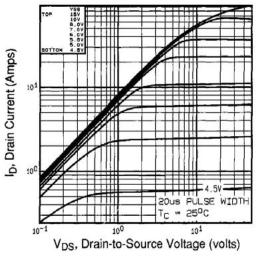
a. Repetitive rating; pulse width limited by maximum junction temperature (see fig. 11).

b. Pulse width $\leq 300~\mu s;$ duty cycle $\leq 2~\%.$

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TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)

Fig. 1 - Typical Output Characteristics, T_C = 25 °C

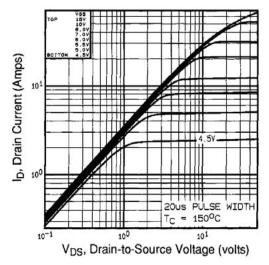


Fig. 2 - Typical Output Characteristics, T_C = 150 °C

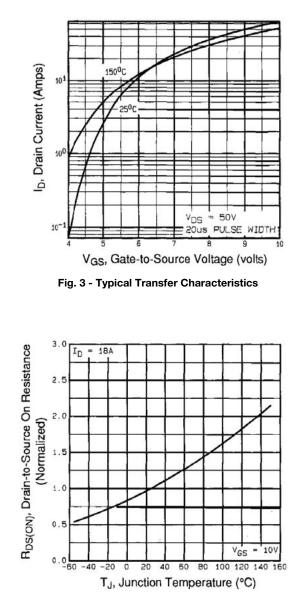


Fig. 4 - Normalized On-Resistance vs. Temperature

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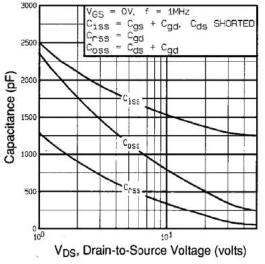


Fig. 5 - Typical Capacitance vs. Drain-to-Source Voltage

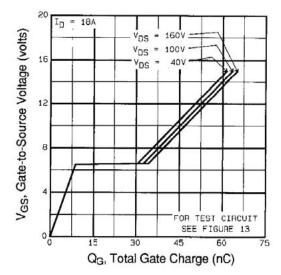


Fig. 6 - Typical Gate Charge vs. Gate-to-Source Voltage

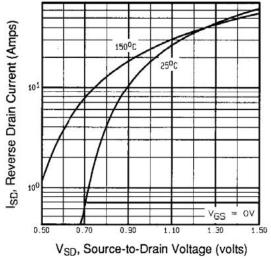
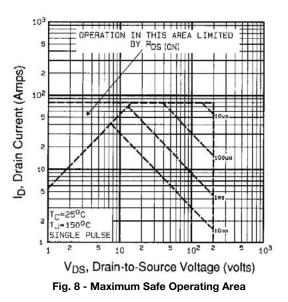


Fig. 7 - Typical Source-Drain Diode Forward Voltage



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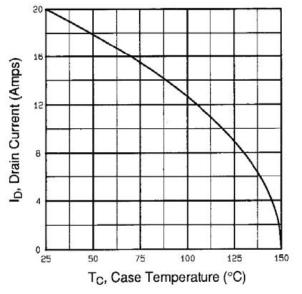


Fig. 9 - Maximum Drain Current vs. Case Temperature

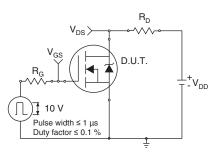


Fig. 10a - Switching Time Test Circuit

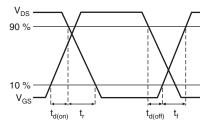


Fig. 10b - Switching Time Waveforms

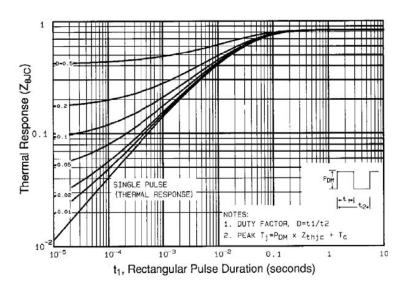


Fig. 11 - Maximum Effective Transient Thermal Impedance, Junction-to-Case

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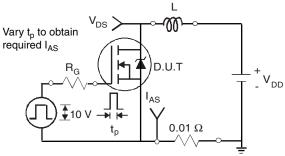


Fig. 12a - Unclamped Inductive Test Circuit

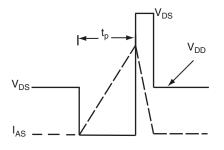


Fig. 12b - Unclamped Inductive Waveforms

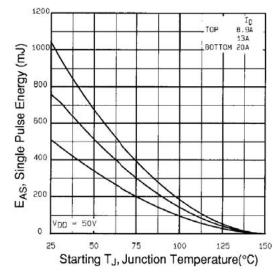
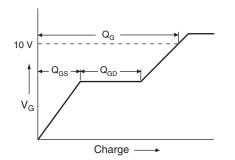
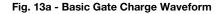


Fig. 12c - Maximum Avalanche Energy vs. Drain Current





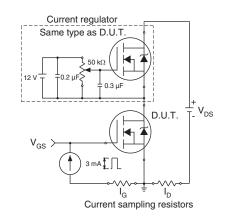
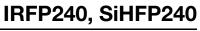


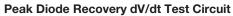
Fig. 13b - Gate Charge Test Circuit

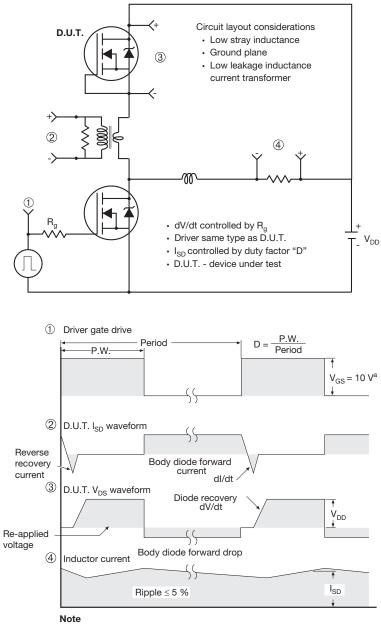
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a. $V_{GS} = 5 V$ for logic level devices

Fig. 14 - For N-Channel

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TO-247AC (High Voltage)

ECN: X13-0103-Rev. D, 01-Jul-13 DWG: 5971

Notes

1. Dimensioning and tolerancing per ASME Y14.5M-1994.

2. Contour of slot optional.

 Dimension D and E do not include mold flash. Mold flash shall not exceed 0.127 mm (0.005") per side. These dimensions are measured at the outermost extremes of the plastic body.

4. Thermal pad contour optional with dimensions D1 and E1.

5. Lead finish uncontrolled in L1.

6. Ø P to have a maximum draft angle of 1.5 to the top of the part with a maximum hole diameter of 3.91 mm (0.154").

7. Outline conforms to JEDEC outline TO-247 with exception of dimension c.

8. Xian and Mingxin actually photo.





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