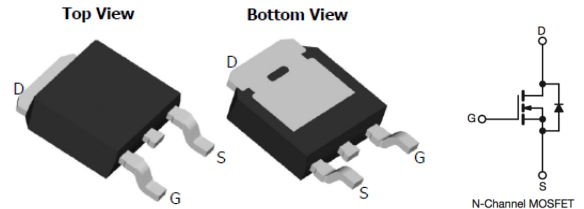


N-Channel Enhancement Mode Power MOSFET
PRIMARY CHARACTERISTICS

BV_{DSS}	$R_{DS(on)}$ TYP	I_D
100V	$5m\Omega @ V_{GS}=10V$	96A
	$6m\Omega @ V_{GS}=6.0V$	
	$7m\Omega @ V_{GS}=4.5V$	

TO-252 PACKAGE

GENERAL DESCRIPTION

- DC/DC Converters
- Power Management for SMPS

MECHANICAL DATA

- Case : Molded plastic, TO-252
- Polarity : Shown above
- Terminals : Plated terminals, solderable per MIL-STD-750, Method 2026
- Epoxy : UL94-V0 rated flame retardant

Absolute Maximum Ratings @ $T_A=25^\circ C$ unless otherwise noted

Parameter		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DSS}	100	V
Gate-Source Voltage		V_{GSS}	± 20	V
Drain Current (Continuous) *AC	$T_C=25^\circ C$	I_D	96	A
	$T_C=100^\circ C$		60.5	
Drain Current (Pulse) *B		I_{DM}	300	A
Power Dissipation	$T_C=25^\circ C$	P_D	125	W
Operating Temperature/ Storage Temperature		T_J/T_{STG}	-55~150	$^\circ C$

Thermal Resistance Ratings

Parameter	Symbol	Maximum	Unit
Maximum Junction-to-Case (Drain)	R_{thJC}	1	$^\circ C/W$



N-Channel Enhancement Mode Power MOSFET

Electrical Characteristics @T_A=25°C unless otherwise noted

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	100	--	--	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 100V, V _{GS} = 0V	--	--	1	μA
Gate Threshold Voltage	V _{GS(TH)}	V _{GS} = V _{DS} , I _{DS} = 250μA	1	2	3	V
Gate Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} =0V	--	--	±100	nA
Drain-Source On-state Resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 20A	--	5	6.5	mΩ
	R _{DS(on)}	V _{GS} = 6.0V, I _D = 20A	--	6	8	mΩ
	R _{DS(on)}	V _{GS} = 4.5V, I _D = 20A	--	7	10	mΩ
Diode Forward Voltage	V _{SD}	I _{SD} = 1A , V _{GS} =0V	--	0.67	1.2	V
Diode Forward Current *AC	I _S	T _C =25°C	--	--	96	A
Switching						
Total Gate Charge	Q _g	V _{DS} =50V , V _{GS} =10V , I _D =20A	--	59	--	nC
Gate-Source Charge	Q _{gs}		--	10	--	nC
Gate-Drain Charge	Q _{gd}		--	13.5	--	nC
Turn-on Delay Time	t _{d (on)}	V _{DS} = 50V, V _{GEN} = 10V, R _G = 4.5Ω, R _L = 2.5Ω, I _{DS} = 20A	--	13.2	--	ns
Turn-on Rise Time	t _r		--	40	--	ns
Turn-off Delay Time	t _{d (off)}		--	38	--	ns
Turn-Off Fall Time	t _f		--	66	--	ns
Dynamic						
Input Capacitance	C _{iss}	V _{GS} =25V, V _{DS} = 10V, f=1MHz	--	3460	--	pF
Output Capacitance	C _{oss}		--	1940	--	pF
Reverse Transfer Capacitance	C _{rss}		--	194	--	pF

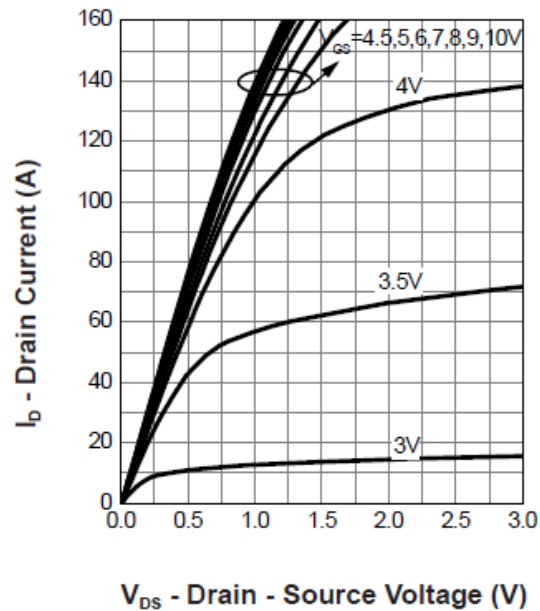
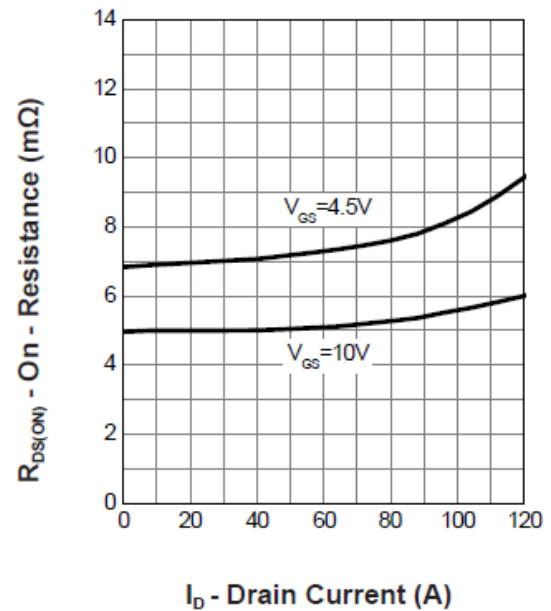
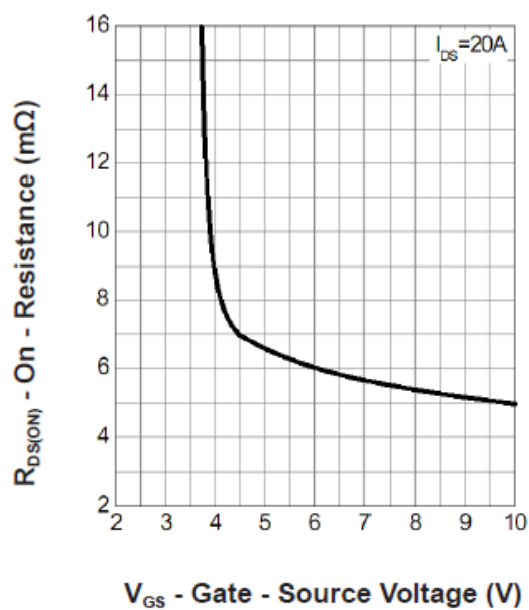
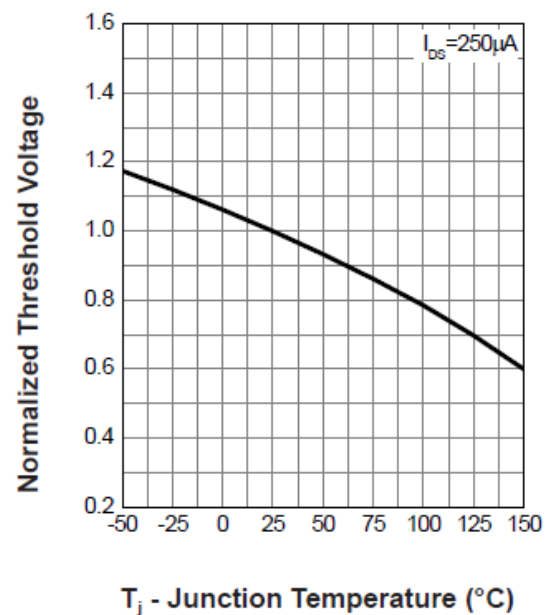
A: The value of R_{θJA} is measured with the device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with T_A = 25°C. The value in any given application depends on the user's specific board design.

B: Repetitive rating, pulse width limited by junction temperature.

C: The current rating is based on the t_≤ 10s junction to ambient thermal resistance rating, Package limited 80A. .

N-Channel Enhancement Mode Power MOSFET

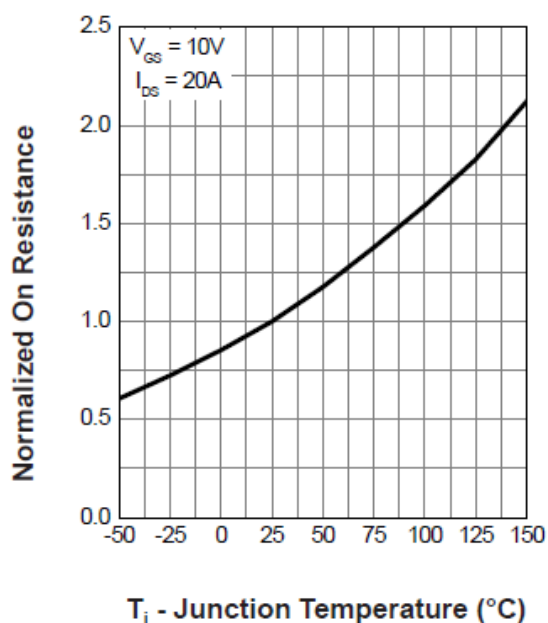
Typical Performance Characteristics (($T_J = 25^\circ\text{C}$, unless otherwise noted))

Output Characteristics

Drain-Source On Resistance

Gate-Source On Resistance

Gate Threshold Voltage


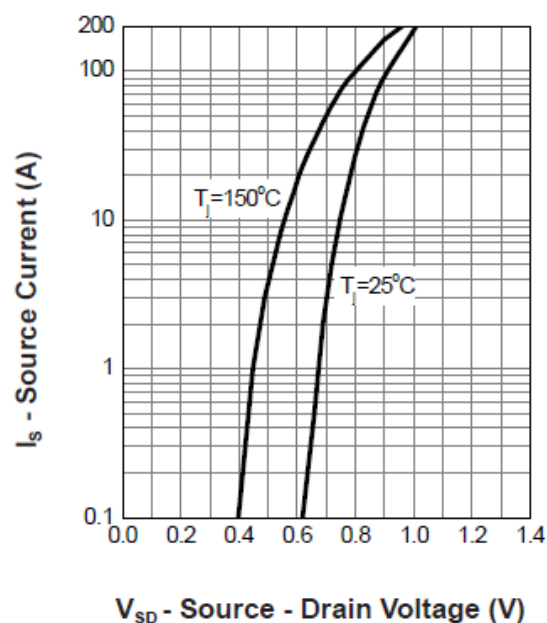


N-Channel Enhancement Mode Power MOSFET

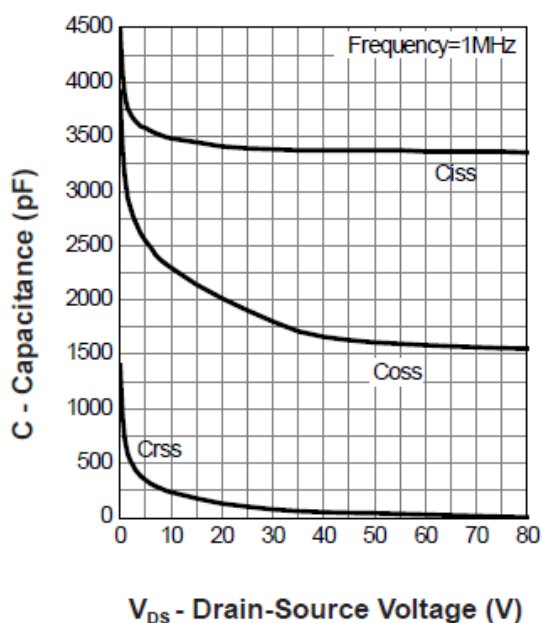
Drain-Source On Resistance



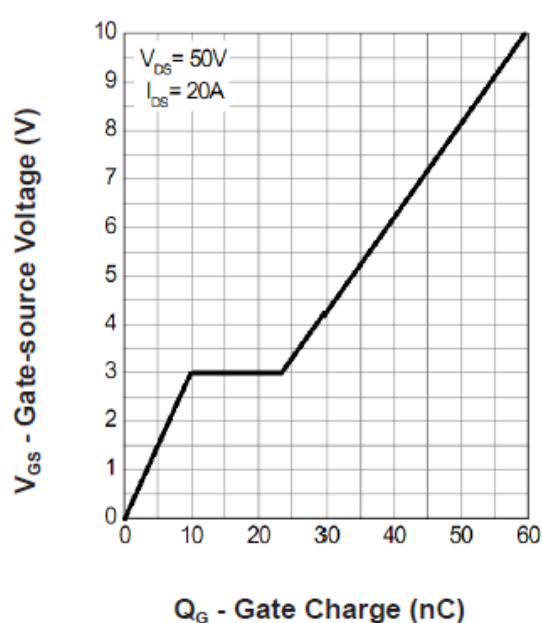
Source-Drain Diode Forward



Capacitance



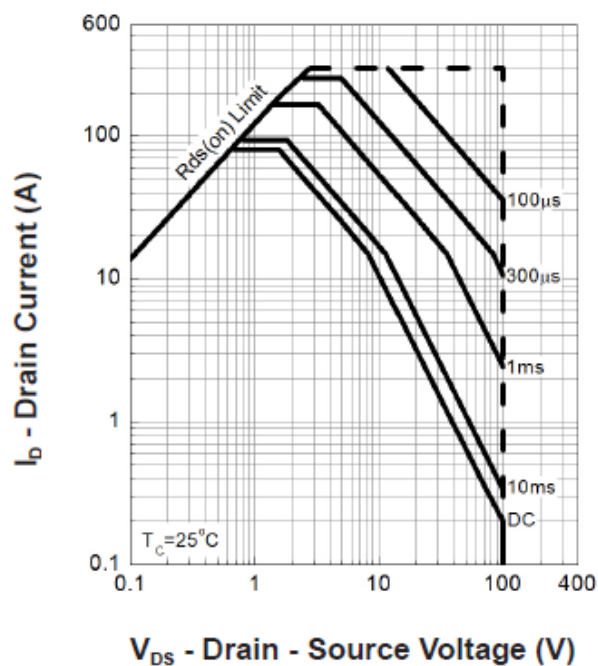
Gate Charge



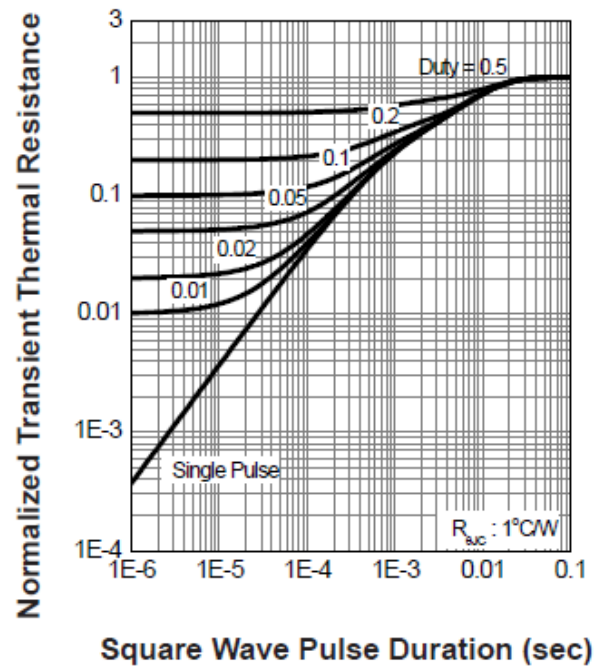


N-Channel Enhancement Mode Power MOSFET

Safe Operation Area



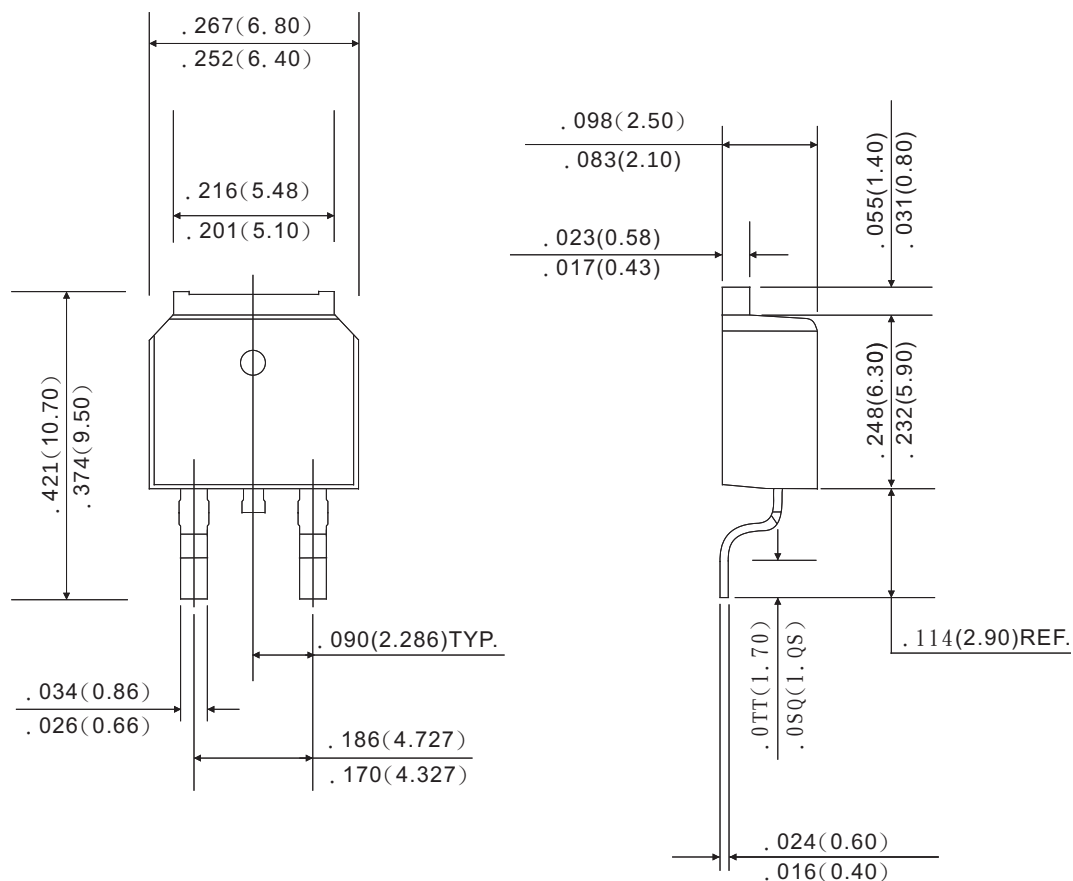
Thermal Transient Impedance





Outline Drawing

TO-252(j)

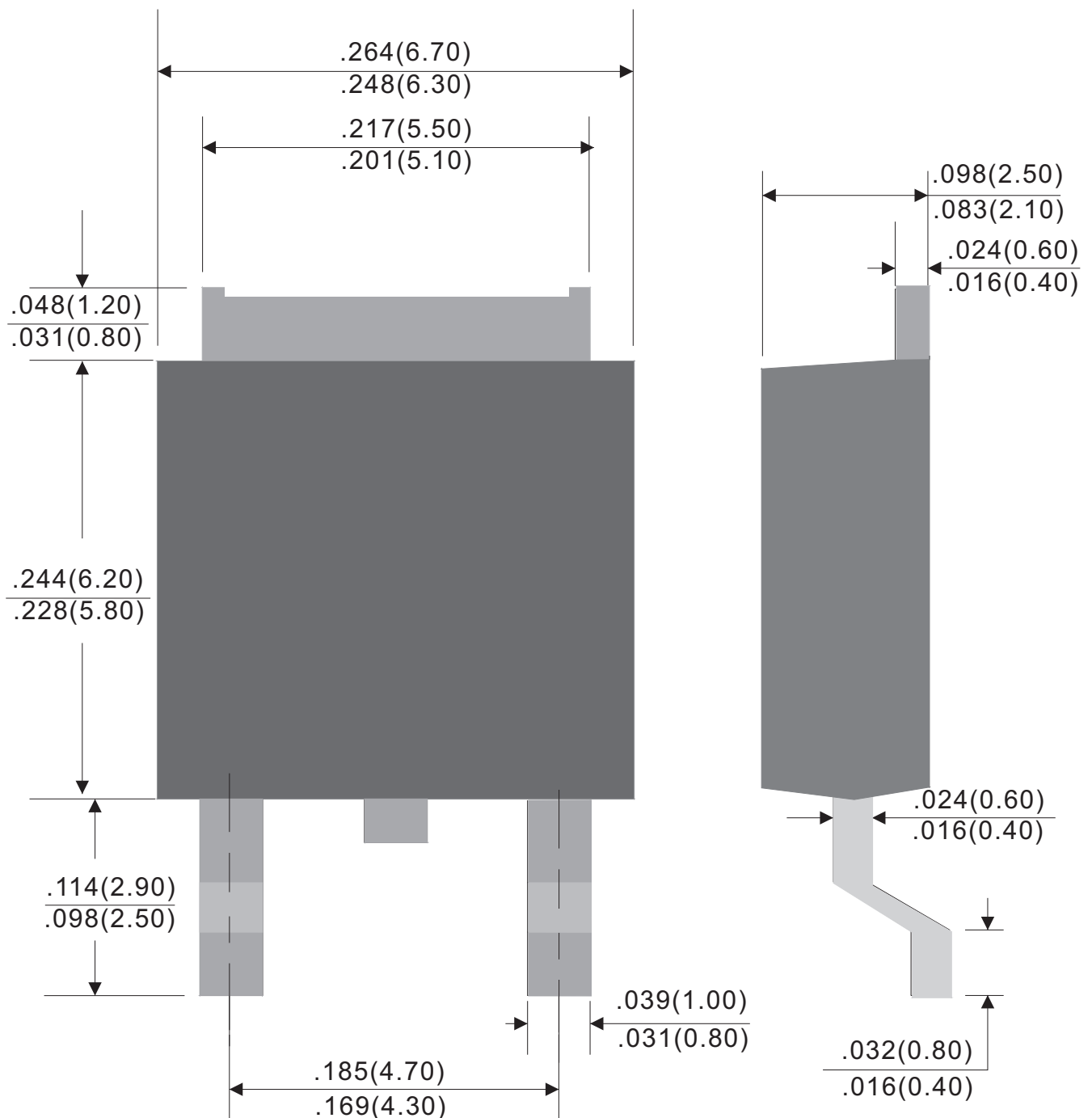


Dimensions in inches and (millimeters)

Rev.B

Outline Drawing

DPAK(TO-252)



Dimensions in inches and (millimeters)

Rev.A

Ordering Information:

Device PN	Packing
SJA100N96 -T ⁽¹⁾ H ⁽²⁾ -WS ⁽³⁾	Tape&Reel: 2.5 Kpcs/Reel

Note: (1) Packing code, Tape & Reel Packing

(2) Halogen free product for packing code suffix "H"

(3) WS : Willas brand abbreviation, Label Type does not display

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