

/ Descriptions

TO-220 MOSFET N-CHANNEL MOSFET in a TO-220 Plastic Package.

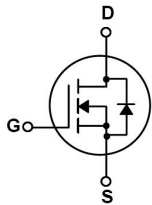
/ Features

Fast switching, low on resistance, low gate charge, low reverse transfer capacitances.

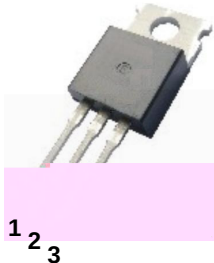
/ Applications

Used in various power switching circuit for system miniaturization and higher efficiency.

/ Equivalent Circuit



/ Pinning



PIN1 X G

PIN 2 X D

PIN 3 X S

/ h_{FE} Classifications & Marking

See Marking Instructions.

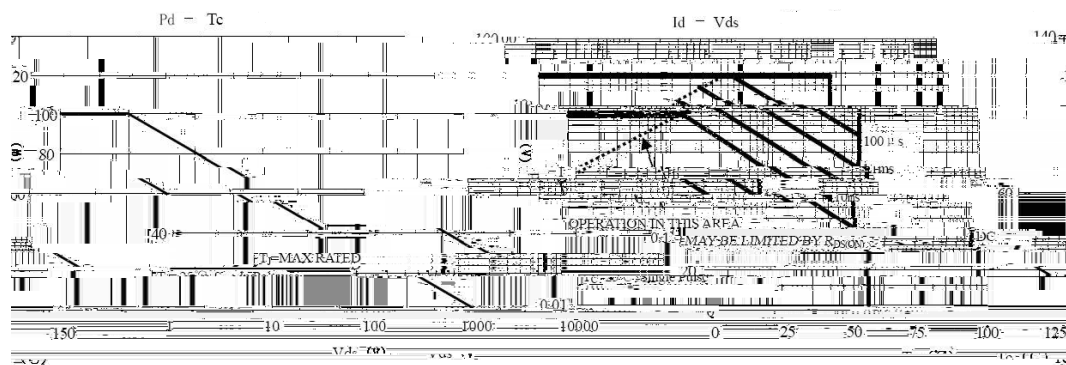
/ Absolute Maximum Ratings(Ta=25)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	700	V
Drain Current	$I_D(T_c=25)$	6.0	A
Drain Current	$I_D(T_c=100)$	3.6	A
Drain Current - Pulsed	I_{DM}	24	A
Gate-Source Voltage	V_{GS}	± 30	V
Single Pulsed Avalanche Energy	E_{AS}	185	mJ
Repetitive Avalanche Energy	E_{AR}	20	mJ
Avalanche Current	I_{AR}	3.3	A
Power Dissipation	$P_D(T_c=25)$	100	W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to 150	
Junction-to-Case	R_{dJC}	1.25	/W
Junction-to-Ambient	R_{dJA}	62	/W

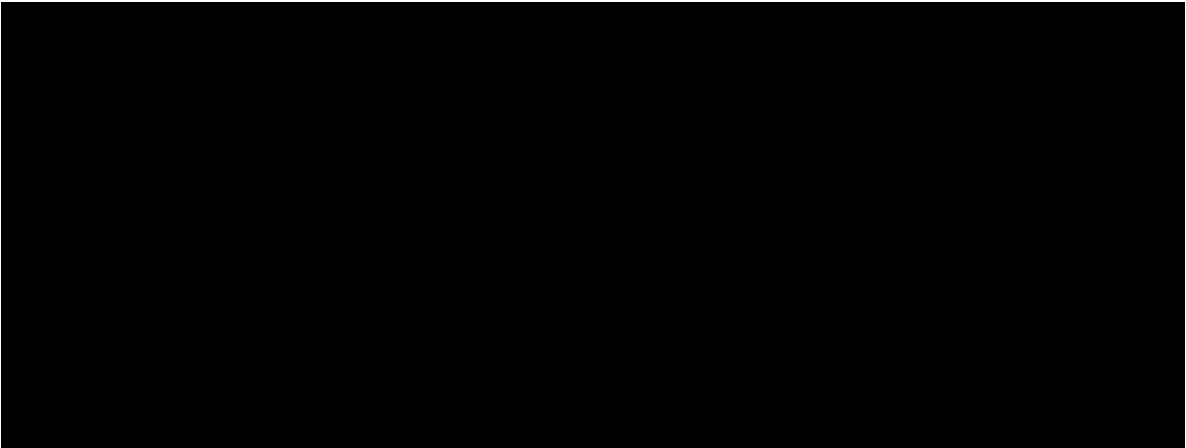
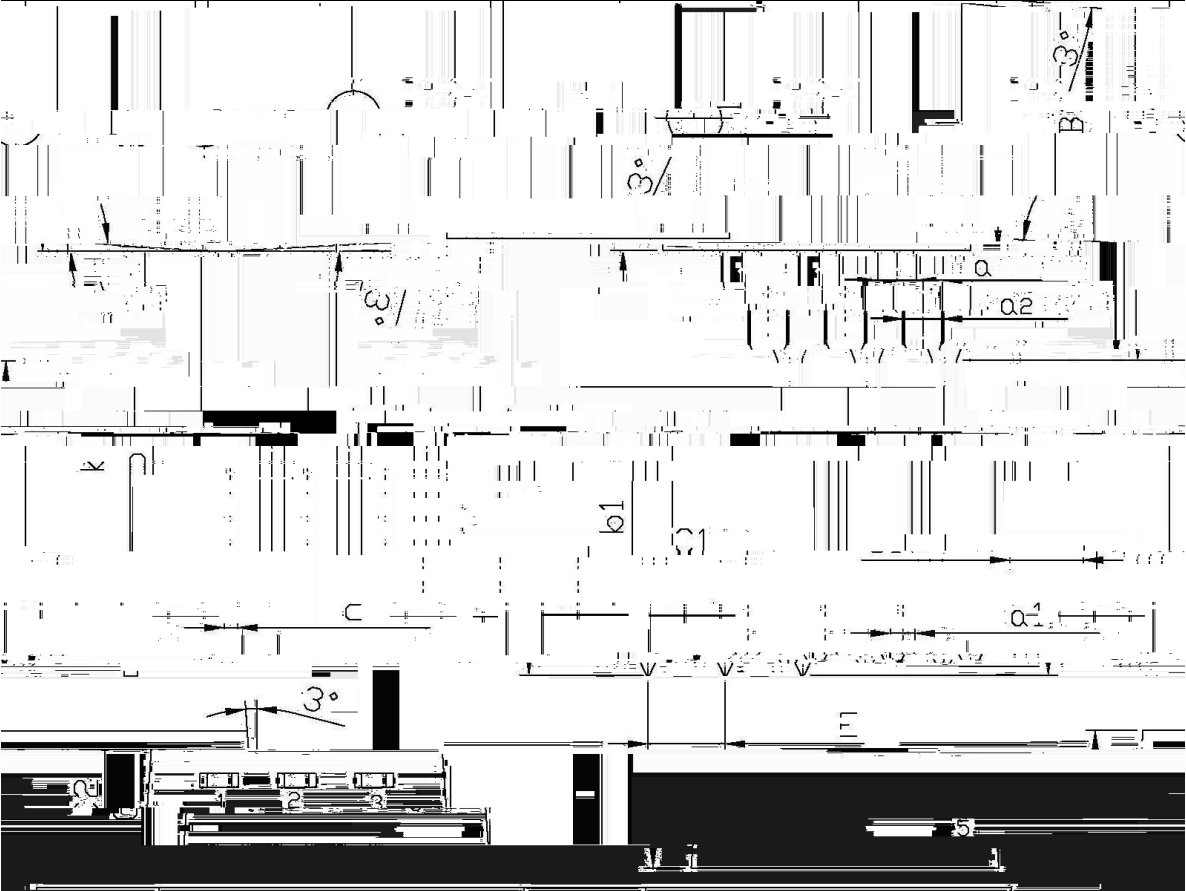
/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DS}	$V_{GS}=0V$ $I_D=250\mu A$	700			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=700V$ $V_{GS}=0V$			1	μA
		$V_{DS}=560V$ $T_a=125$			100	μA
Gate-Body Leakage Current, Forward	I_{GSS}	$V_{GS}=\pm 20V$ $V_{DS}=0V$			± 10	μA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	2.0		4.0	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=3.0A$		1.35	1.6	Ω
Forward Transconductance	g_{FS}	$V_{DS}=15V$ $I_D=3.0A$		5.0		S
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V$ $I_S=6.0A$			1.5	V
Input Capacitance	C_{iss}	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0MHz$		938		pF
Output Capacitance	C_{oss}			87.8		pF
Reverse Transfer Capacitance	C_{rss}			8.2		pF
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=350V$ $I_D=6.0A$ $R_G=25\Omega$ $V_{GS}=10V$		14.7		ns
Turn-On Rise Time	t_r			26		ns
Turn-Off Delay Time	$t_{d(off)}$			68.4		ns
Turn-Off Fall Time	t_f			34.6		ns

/ Electrical Characteristic Curve

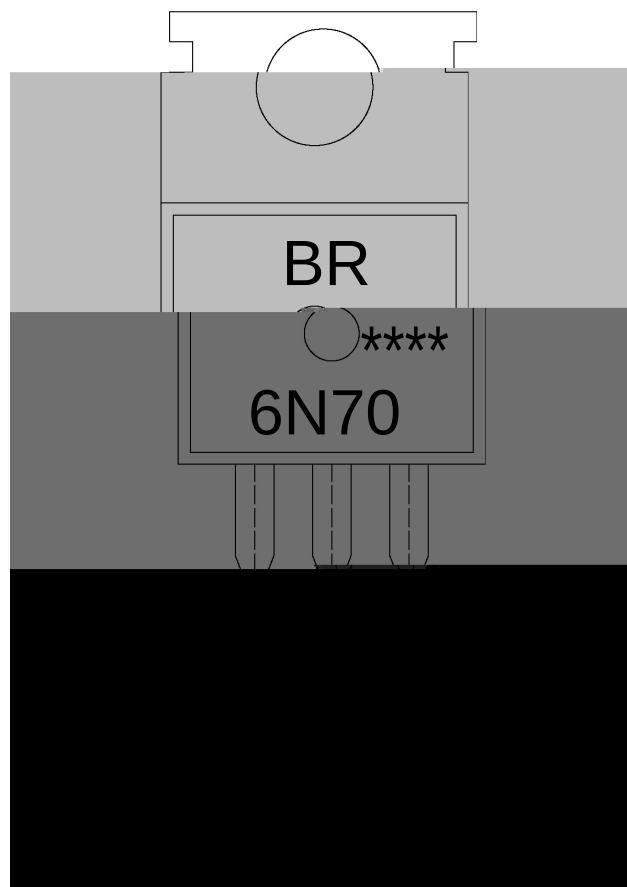


/ Package Dimensions



Dimensions in Millimeters				Dimensions in Millimeters			
Symbol	Min	Max		Symbol	Min	Max	
Δ	9.8	10.2		C	1.2	1.4	
e	3.56	3.41		P	6.3	6.7	
h	15.7	16.1		B	9.0	9.4	
h1	3.61	3.0		h2	2.8	3.0	
h3	8.6	8.7		h4	1.9	2.0	
h5	1.45			h6	0.2	1.25	

/ Marking Instructions



б " х

BR х

9Q:3 х

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Note:

BR:

6N70:

****:

№ з " Пб

№ з " Пб

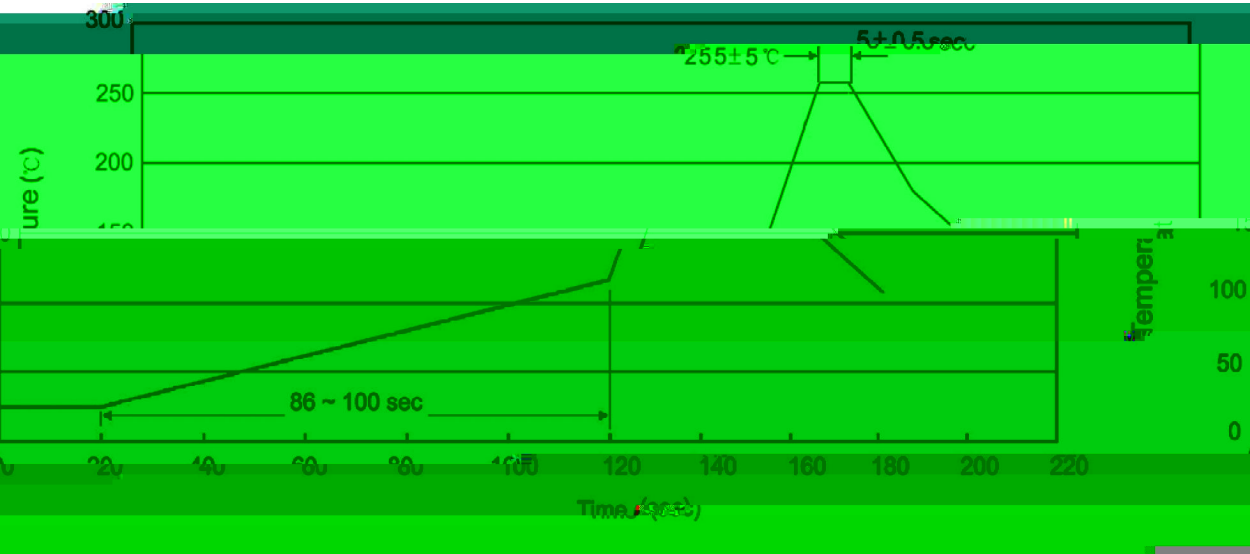
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Company Code

Product Type.

Lot No. Code, code change with Lot No.

() / Temperature Profile for Dip Soldering(Pb-Free)



- 说明

 1. 预加热: 25~150 °C, Time: 60~90sec;
 2. 峰值温度: 255±5 °C, 持续时间: 5±0.5sec;
 3. 冷却速度: 2~10 °C/sec.
- Note:

 - 1.Preheating:25~150 °C, Time:60~90sec.
 - 2.Peak Temp.:255±5 °C, Duration:5±0.5sec.
 3. Cooling Speed: 2~10 °C/sec.

/ Resistance to Soldering Heat Test Conditions

温度: 270±5 °C 时间: 10±1 sec. Temp.:270±5 Time:10±1 sec

/ Packaging SPEC.

包装形式 / BULK

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm ³)		
	Units/Bag 只/袋	Bags/Inner Box 袋/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Bag 袋	Inner Box 盒	Outer Box 箱
TO-220/F	200	10	2,000	5	10,000	135×190	237×172×102	560×245×195