

/ Descriptions

TO-252 N MOS N-CHANNEL MOSFET in a TO-252 Plastic Package.

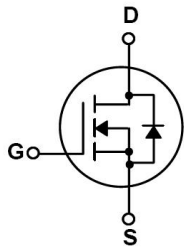
/ Features

Low gate charge, low crss, fast switching.

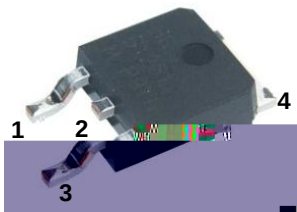
/ Applications

These devices are well suited for power switch circuit of adaptor and charger.

/ Equivalent Circuit



/ Pinning



PIN1 G PIN 2 D PIN 3 S PIN 4 D

/ 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	$I_D(T_c=25)$	4.0	A
Drain Current	$I_D(T_c=100)$	3.2	A
Drain Current - Pulsed	I_{DM}	16	A
Gate-Source Voltage	V_{GS}	± 30	V
Single Pulsed Avalanche Energy	E_{AS}	150	mJ
Power Dissipation	P_D	70	W
Junction Temperature Range	T_j	150	
Storage Temperature Range	T_{stg}	-55~150	
Junction-to-Case	$R_{\theta JC}$	1.79	/W
Junction-to-Ambient	$R_{\theta JA}$	62.5	/W

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V$ $I_D=250\mu A$	700			V
Breakdown Voltage Temperature Coefficient	$\Delta BV_{DSS} / \Delta T_j$	$I_D=250\mu A$ Referenced to 25		0.6		V/
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}$ $I_D=250\mu A$	2.0		4.0	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=700V$ $V_{GS}=0V$ $T_j=25$			10	μA
		$V_{DS}=560V$ $V_{GS}=0V$ $T_j=125$			100	μA
Forward Transconductance	g_{FS}	$V_{DS}=15V$ $I_D=2.0A$		3.5		S
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 30V$			± 10	μA
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=2.0A$		2.5	2.8	Ω
Input Capacitance	C_{iss}	$V_{GS}=0V$ $V_{DS}=25V$ $V_F=1.0MHz$		520		pF
Turn-Off Delay Time	$t_{d(off)}$	$V_{DD}=350V$ $I_D=4.0A$ $R_G=25\Omega$		45		ns

/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Total Gate Charge	Q_g	$I_D=4.0A$ $V_{DS}=350V$ $V_{GS}=10V$		15		nC
Gate-to-Source Charge	Q_{gs}			3		nC
Gate-to-Drain Charge	Q_{gd}			6		nC
Continuous Diode Forward Current	I_S				4.0	A
Diode Forward Voltage	V_{SD}	$I_S=4.0A$ $V_{GS}=0V$ $T_j=25$			1.4	V
Reverse Recovery Time	t_{rr}	$I_f=4.0A$ $T_j=25$ $di/dt=100A/\mu s$		198		nS
Reverse Recovery Charge	Q_{rr}			770		uC

(Notes):

Repetitive rating: Pulse width limited by maximum junction temperature

$T_a=25$, $V_{DD}=50V$, $L=30mH$, $R_G=25\Omega$, $I_{AS}=4.0A$

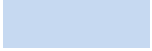
Starting $T_j=25$, $V_{DD}=50V$, $L=30mH$, $R_G=25\Omega$, $I_{AS}=4.0A$

$\leq 300\mu s$ ≤ 2

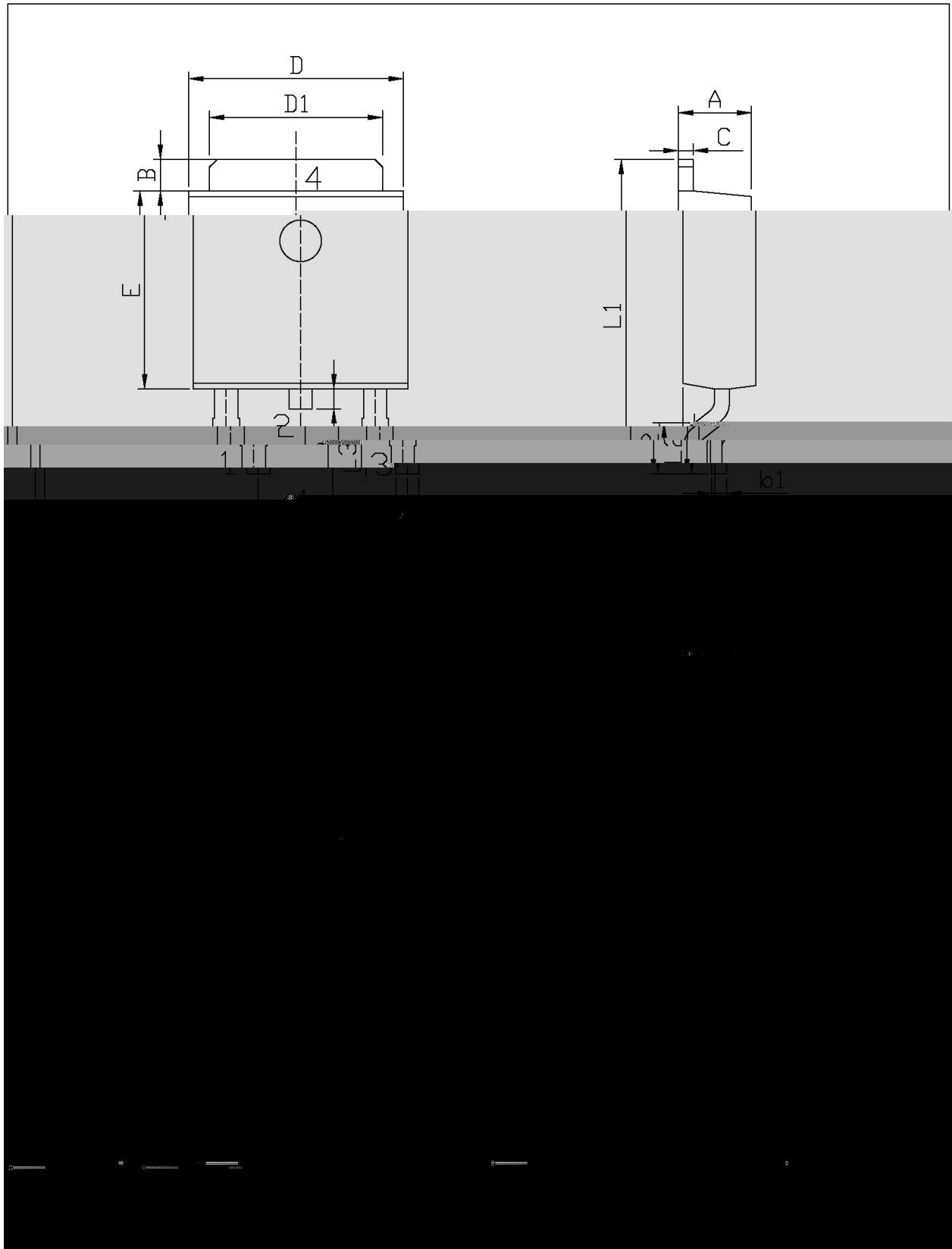
Pulse Test: Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$

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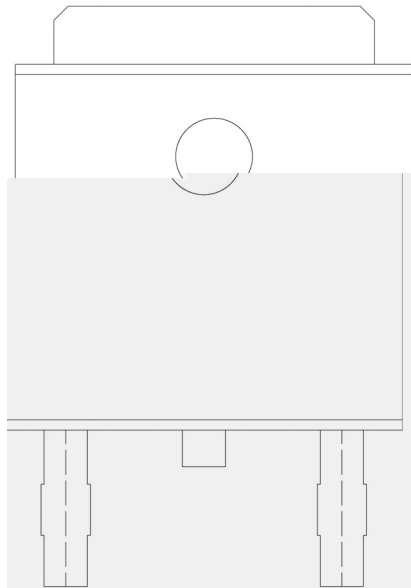
Rev.E May.



/ Package Dimensions



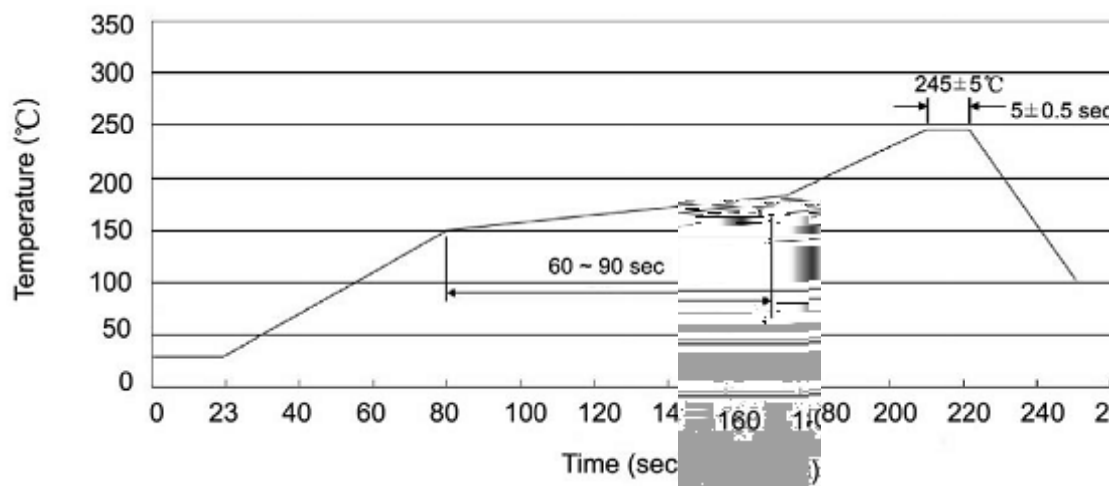
/ Marking Instructions



BR
4N70

Note:
BR:

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



Note:

1. Preheating: 25~150 °C, Time: 60~90 sec;
2. Peak Temp.: 245±5 °C, Duration: 5±0.5 sec;
3. Cooling Speed: 2~10 °C/sec.

/ Resistance to Soldering Heat Test Conditions

260±5 °C, 10±1 sec., Temp.: 260±5 °C, T

/ Packaging SPEC.

/ REEL

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (mm)		
	Units/Reel 只/卷盘	Reels/Inner Box 卷盘/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Reel	Inner Box 盒	
TO-252	2,500	2	5,000	5	25,000	13 × 16	360×360×50	

/ TUBE

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (mm)		
	Units/Tube 只/套管	Tubes/Inner Box 套管/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Tube 套管	Inner Box 盒	
TO-251/252	75	48	3,600	5	18,000	526×20.5×5.25	555×164×50	

/ Notices