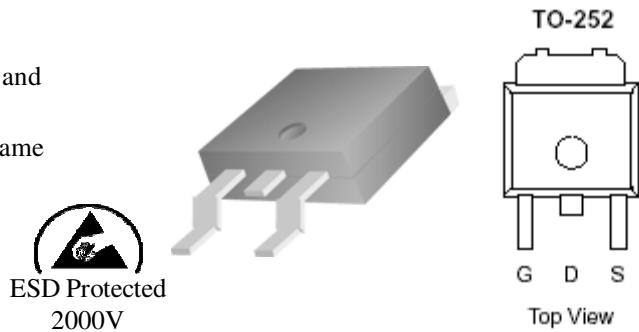


### N-Channel 100-V (D-S) MOSFET

These miniature surface mount MOSFETs utilize a high cell density trench process to provide low  $r_{DS(on)}$  and to ensure minimal power loss and heat dissipation. Typical applications are DC-DC converters and power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

PRODUCT SUMMARY		
$V_{DS}$ (V)	$r_{DS(on)}$ m( $\Omega$ )	$I_D$ (A)
100	78 @ $V_{GS} = 10V$	21
	92 @ $V_{GS} = 4.5V$	20

- Low  $r_{DS(on)}$  provides higher efficiency and extends battery life
- Low thermal impedance copper leadframe DPAK saves board space
- Fast switching speed
- High performance trench technology



ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ C$ UNLESS OTHERWISE NOTED)			
Parameter	Symbol	Limit	Units
Drain-Source Voltage	$V_{DS}$	100	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	
Continuous Drain Current <sup>a</sup>	$T_C = 25^\circ C$ $I_D$	20	A
Pulsed Drain Current <sup>b</sup>	$I_{DM}$	36	
Continuous Source Current (Diode Conduction) <sup>a</sup>	$I_S$	30	A
Power Dissipation <sup>a</sup>	$T_C = 25^\circ C$ $P_D$	50	W
Operating Junction and Storage Temperature Range	$T_J, T_{stg}$	-55 to 175	$^\circ C$

THERMAL RESISTANCE RATINGS			
Parameter	Symbol	Maximum	Units
Maximum Junction-to-Ambient <sup>a</sup>	$R_{\theta JA}$	50	$^\circ C/W$
Maximum Junction-to-Case	$R_{\theta JC}$	3.0	$^\circ C/W$

Notes

- a. Surface Mounted on 1" x 1" FR4 Board.
- b. Pulse width limited by maximum junction temperature

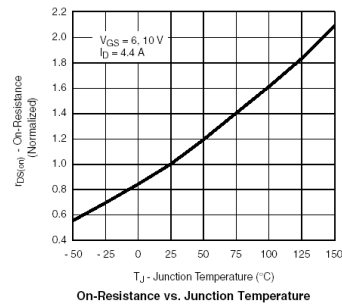
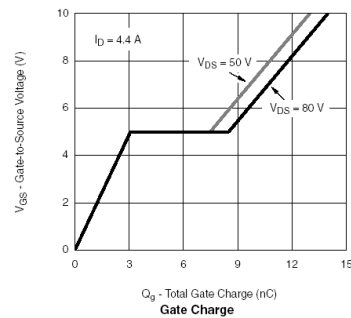
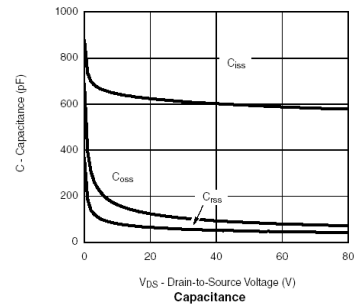
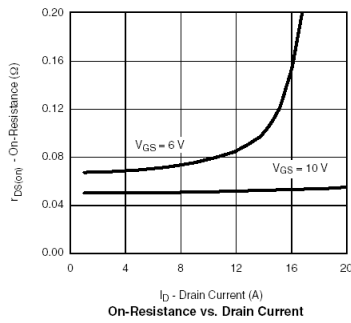
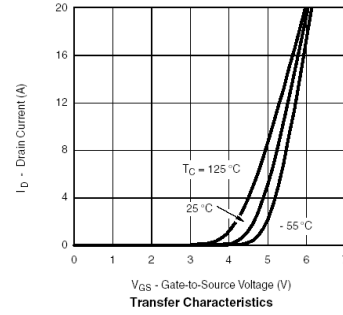
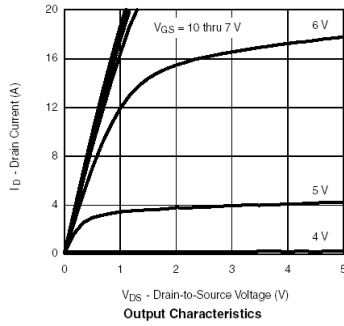
SPECIFICATIONS (T <sub>A</sub> = 25°C UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ	Max	
<b>Static</b>						
Gate-Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250 uA	1.0			V
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0 V, V <sub>GS</sub> = 20 V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 80 V, V <sub>GS</sub> = 0 V			1	uA
		V <sub>DS</sub> = 80 V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 55°C			25	
On-State Drain Current <sup>A</sup>	I <sub>D(on)</sub>	V <sub>DS</sub> = 5 V, V <sub>GS</sub> = 10 V	34			A
Drain-Source On-Resistance <sup>A</sup>	r <sub>DS(on)</sub>	V <sub>GS</sub> = 10 V, I <sub>D</sub> = 9.2 A			78	mΩ
		V <sub>GS</sub> = 4.5 V, I <sub>D</sub> = 6.1 A			92	
Forward Transconductance <sup>A</sup>	g <sub>fs</sub>	V <sub>DS</sub> = 40 V, I <sub>D</sub> = 5.5 A		20		S
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> = 9 A, V <sub>GS</sub> = 0 V		0.8		V
<b>Dynamic<sup>b</sup></b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = 50 V, V <sub>GS</sub> = 4.5 V, I <sub>D</sub> = 9 A		21		nC
Gate-Source Charge	Q <sub>gs</sub>			3.8		
Gate-Drain Charge	Q <sub>gd</sub>			14.2		
Turn-On Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> = 50 V, R <sub>L</sub> = 5.2 Ω, I <sub>D</sub> = 9 A, V <sub>GEN</sub> = 10 V		7.5		nS
Rise Time	t <sub>r</sub>			13.6		
Turn-Off Delay Time	t <sub>d(off)</sub>			41		
Fall-Time	t <sub>f</sub>			35		

## Notes

- Pulse test: PW ≤ 300us duty cycle ≤ 2%.
- Guaranteed by design, not subject to production testing.

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Typical Electrical Characteristics (N-Channel)



### Typical Electrical Characteristics (N-Channel)

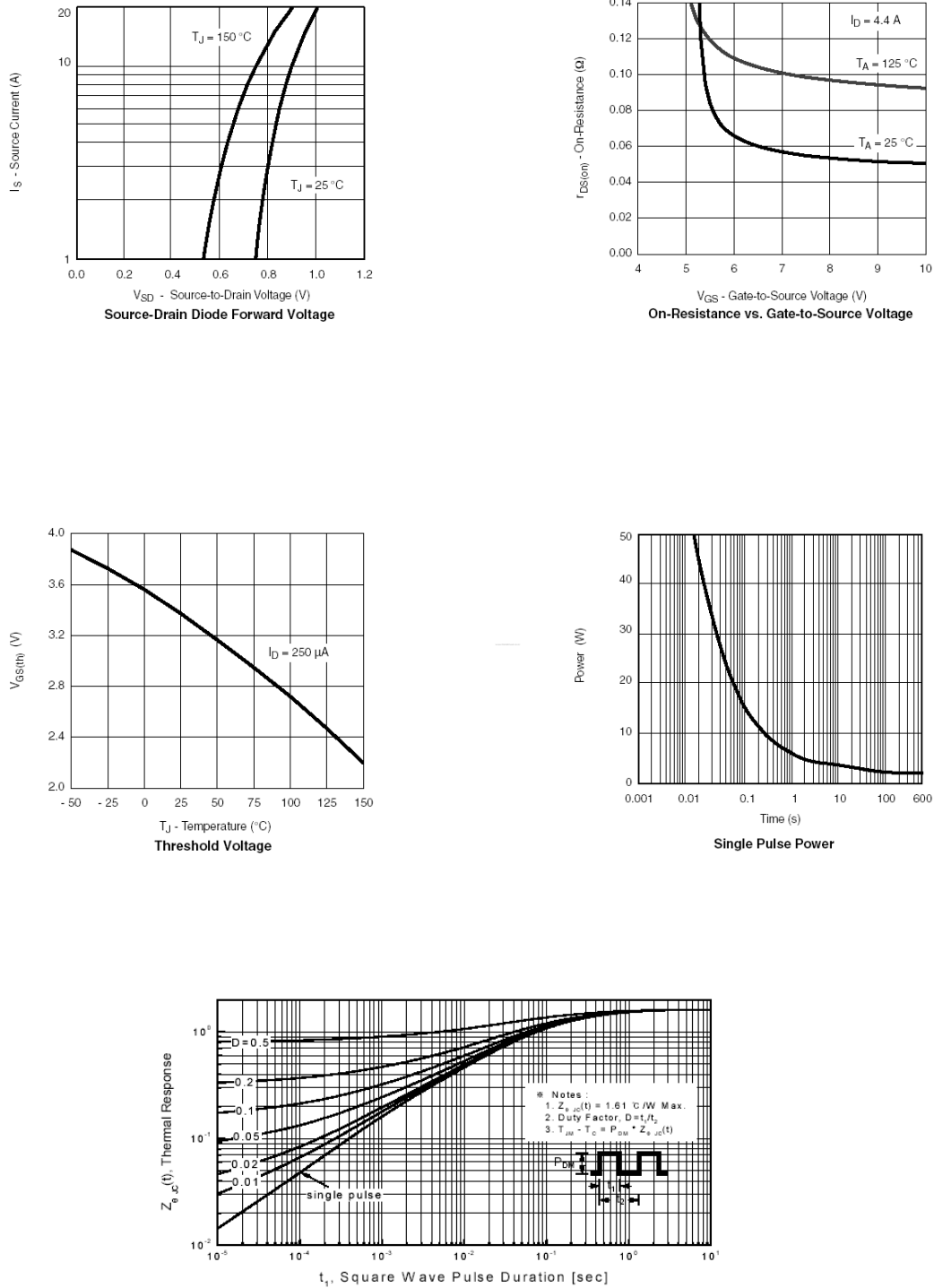
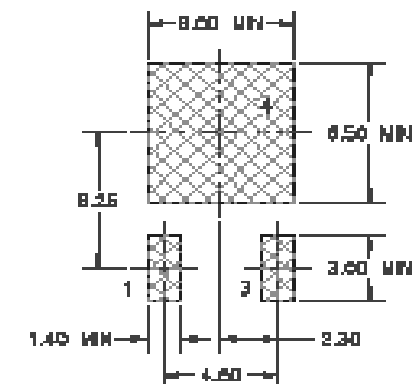
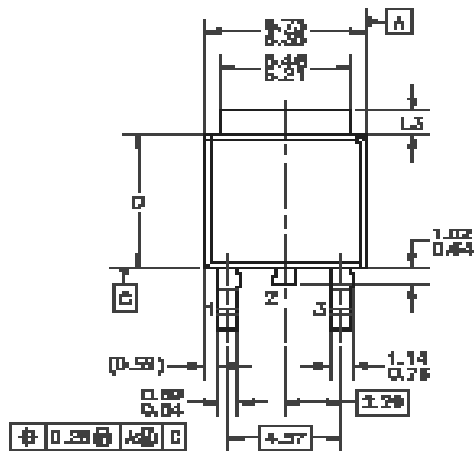
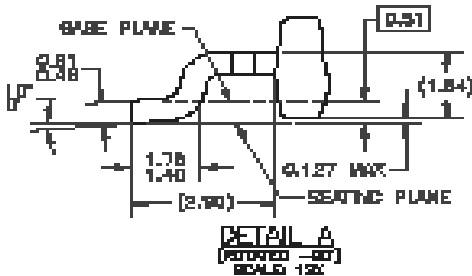
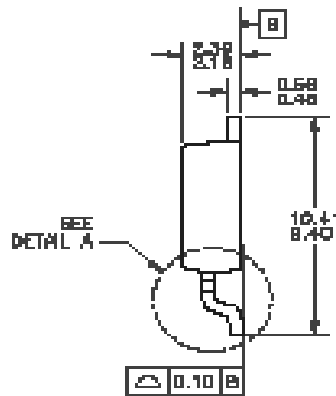
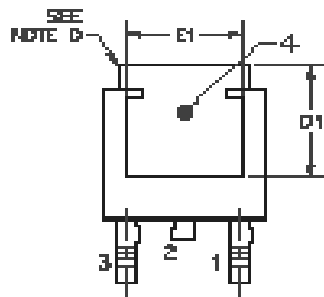


Figure 11. Transient Thermal Response Curve

# Package Information



LAND PATTERN RECOMMENDATION



DETAIL A  
(NOTED - 01)  
SCALE 12X

- NOTES: UNLESS OTHERWISE SPECIFIED
- A) ALL DIMENSIONS ARE IN MILLIMETERS.
  - B) THIS PACKAGE CONFORMS TO JEDEC, TO-262, ISSUE C, VARIATION AA, 30 DE, DATED NOV. 1989.
  - C) DIMENSIONING AND TOLERANCING PER ASME Y14.0M-1994.
  - D) HEAT SINK TOP EDGE COULD BE IN CHAMFERED CORNERS OR EDGE PROTRUSION.
  - E) DIMENSIONS L3, D, E1 & D1 TABLE:

	OPTION A0	OPTION A0
L3	0.68-1.27	1.02-2.54
D	0.97-0.99	0.33-0.69
E1	4.32 MIN	3.01 MIN
D1	3.41 MIN	4.37 MIN