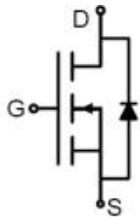
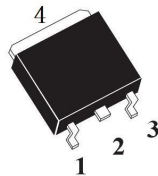


### Features

- Low On resistance.
- 4.5V drive.
- RoHS compliant.



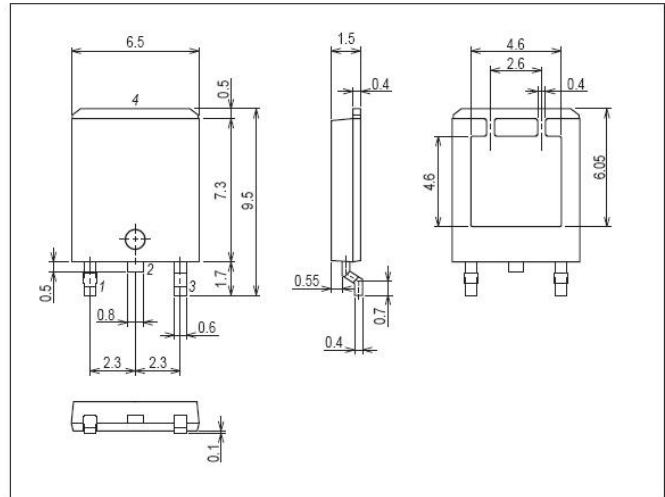
Marking and pin Assignment



TO-252(DPAK) top view

### Package Dimensions

TO-252



### Specifications

Absolute Maximum Ratings at  $T_a=25^{\circ}C$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DSS}$		20	V
Gate-to-Source Voltage	$V_{GSS}$		$\pm 12$	V
Drain Current (DC)	$I_D$		50	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu S$ , duty cycle $\leq 1\%$	80	A
Allowable Power Dissipation	$P_D$	Mounted on a ceramic board (1000mm <sup>2</sup> ×0.8mm) 1unit	28	W
Total Dissipation	$P_T$	Mounted on a ceramic board (1000mm <sup>2</sup> ×0.8mm)	11	W
Channel Temperature	$T_{ch}$		150	$^{\circ}C$
Storage Temperature	$T_{stg}$		-55~+150	$^{\circ}C$

Electrical Characteristics at  $T_a=25^{\circ}C$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D = -250\mu A$ , $V_{GS} = 0V$	20	-	-	V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 20V$ , $V_{GS} = 0V$	-	-	1	$\mu A$
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS} = \pm 12V$ , $V_{DS} = 0V$	-	-	$\pm 100$	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$ , $I_D = 250\mu A$	0.5	0.7	1.0	V

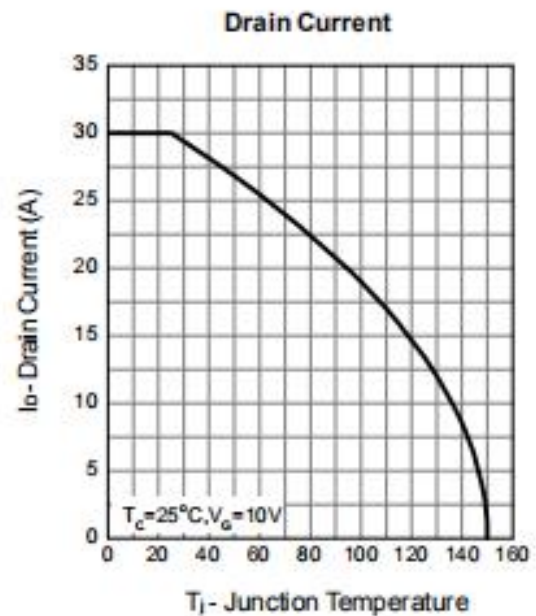
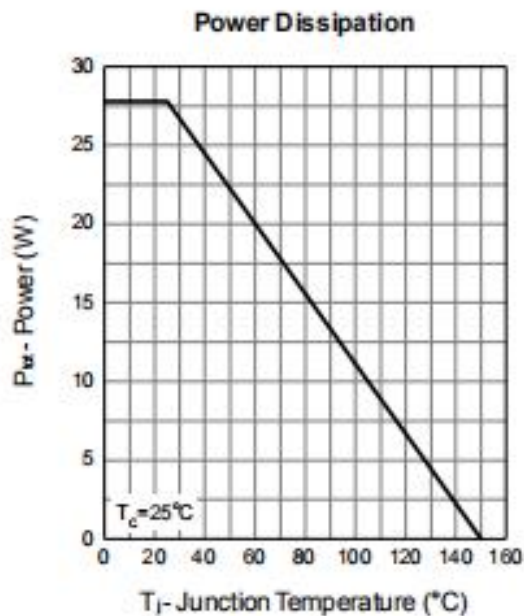
## Si2030

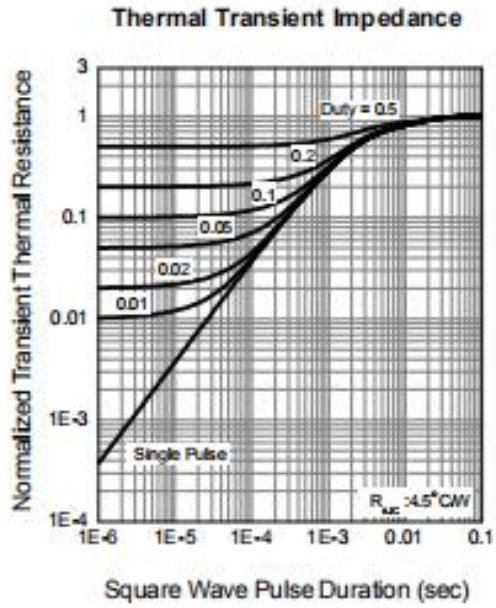
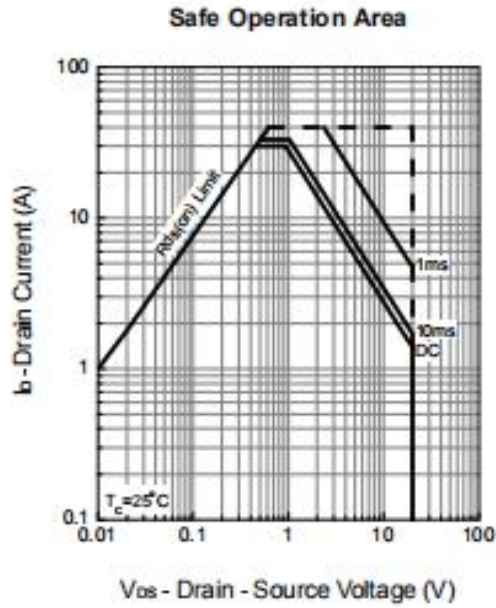
Static Drain-to-Source On-State Resistance	$R_{DS(ON)}$	$I_D=20A, V_{GS}=10V$	-	-	-	m $\Omega$
	$R_{DS(ON)}$	$I_D=15A, V_{GS}=4.5V$	-	11	17	m $\Omega$
	$R_{DS(ON)}$	$I_D=7A, V_{GS}=-2.5V$	-	15	24	m $\Omega$
Input Capacitance	$C_{iss}$	$V_{DS}=-15V, V_{GS}=0V, f=1MHz$	-	600	-	pF
Output Capacitance	$C_{oss}$	$V_{DS}=-15V, V_{GS}=0V, f=1MHz$	-	100	-	pF
Reverse Transfer Capacitance	$C_{rss}$	$V_{DS}=-15V, V_{GS}=0V, f=1MHz$	-	75	-	pF

### Electrical Characteristics at $T_a=25^{\circ}C$ (Continued)

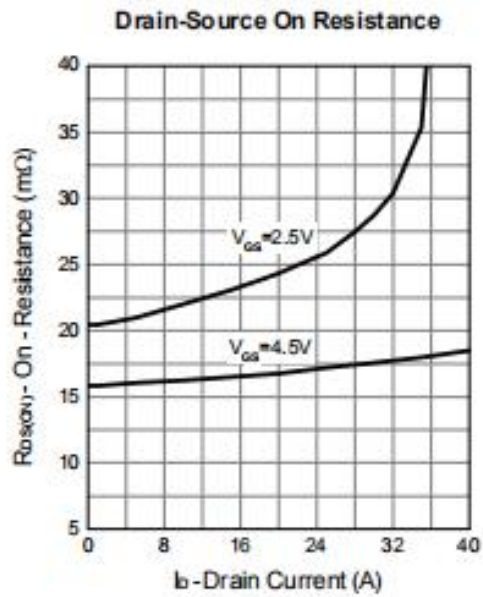
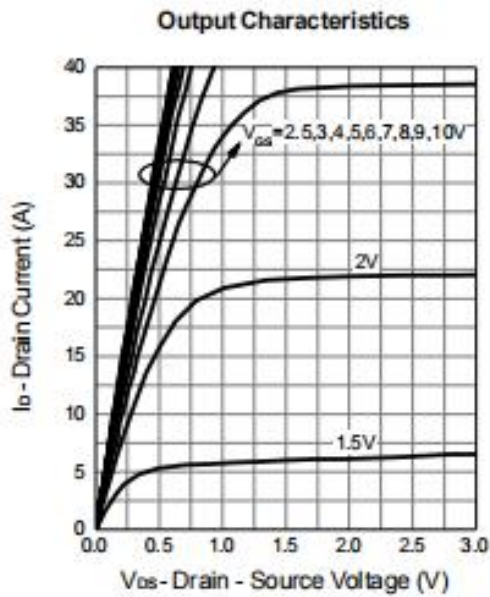
Parameter	Symbol	Conditions	Ratings			Unit
			min	Typ	max	
Turn-on Delay Time	$t_{d(on)}$	$V_{DS}=10V, I_D=1A, R_{GEN}=6\Omega,$ $V_{GS}=4.5V$	-	8.5	-	nS
Rise Time	$t_r$		-	13	-	nS
Turn-off Delay Time	$t_{d(off)}$		-	23.5	-	nS
Fall Time	$t_f$		-	4	-	nS
Total Gate Charge	$Q_g$	$V_{DS}=10V, V_{GS}=4.5V, I_D=15A$	-	6.5	-	nC
Gate-to-Source Charge	$Q_{gs}$		-	0.9	-	nC
Gate-to-Drain "Miller" Charge	$Q_{gd}$		-	2	-	nC
Diode Forward Voltage	$V_{SD}$	$I_S=10A, V_{GS}=0V$	-	0.75	1.3	V

### Typical Characteristics at $T_a=25^{\circ}C$

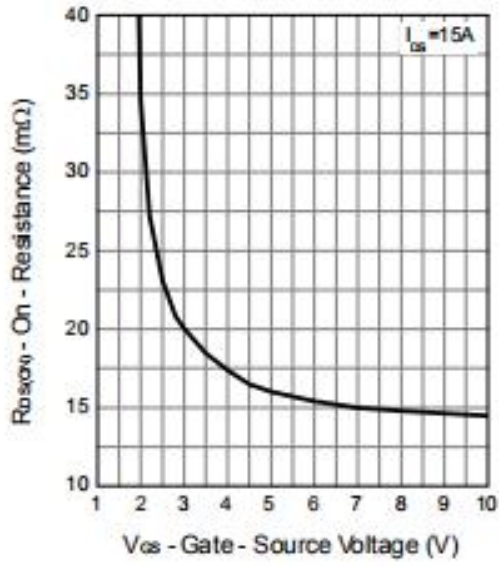




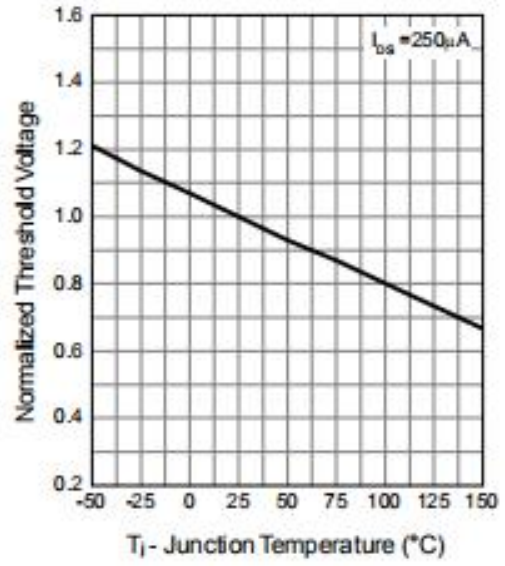
Typical Characteristics at  $T_a=25^\circ\text{C}$  (Continued)



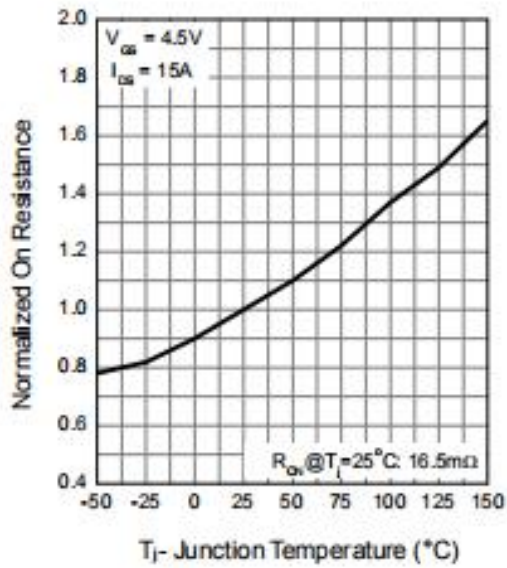
Gate-Source On Resistance



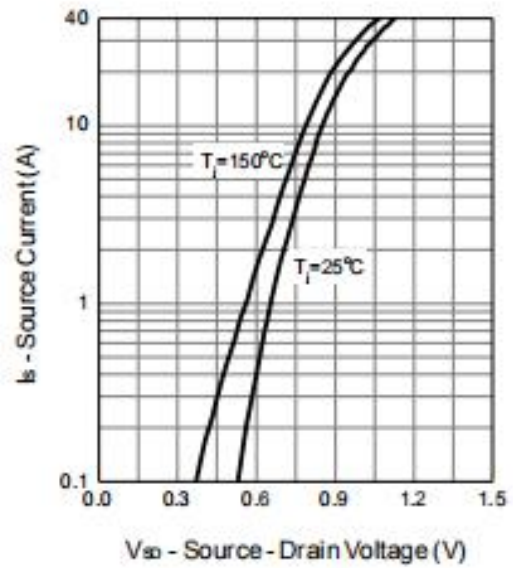
Gate Threshold Voltage

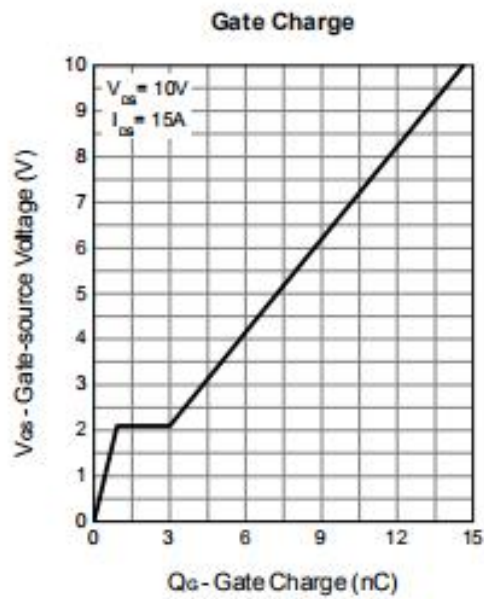
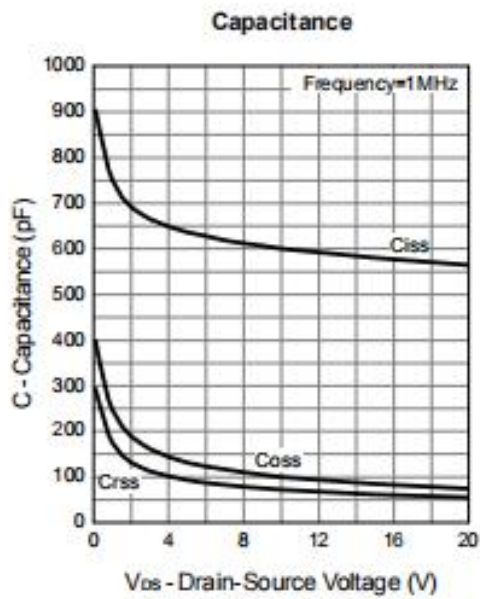


Drain-Source On Resistance

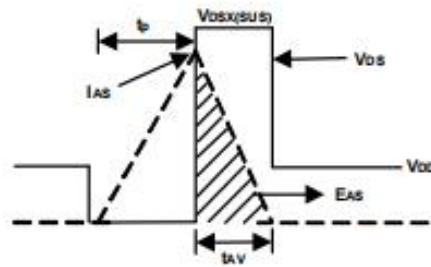
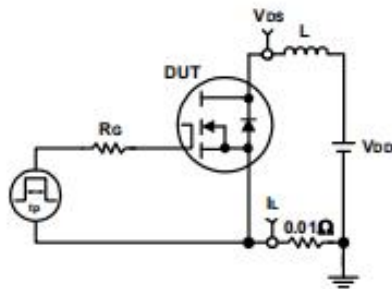


Source-Drain Diode Forward

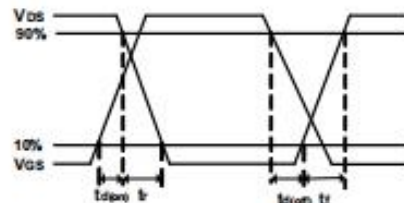
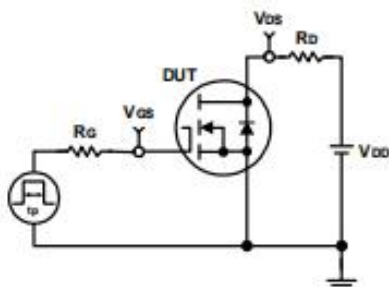




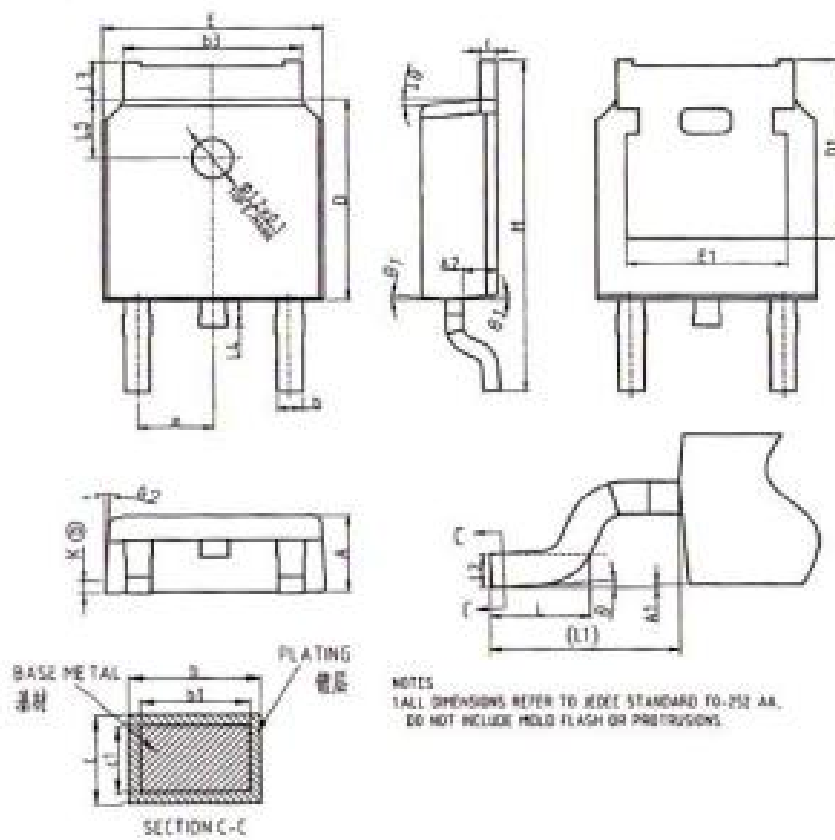
## Avalanche Test Circuit and Waveforms



## Switching Time Test Circuit and Waveforms



## TO-252 Package Information



COMMON DIMENSIONS			
SYMBOL	mm		
	MIN	NOM	MAX
A	2.20	2.20	2.28
A1	0.00	-	0.10
A2	0.97	1.07	1.17
b	0.72	0.78	0.85
b1	0.71	0.76	0.81
b2	5.23	5.23	5.46
c	0.47	0.53	0.58
c1	0.46	0.51	0.56
D	5.00	5.10	5.20
D1	-	5.20±0.2	-
E	5.50	5.60	5.70
E1	4.20	4.81	4.92
e	-	2.28±0.02	-
H	5.20	10.10	10.30
L	1.48	1.50	1.75
L1	-	2.20±0.2	-
L2	-	0.51±0.02	-
L3	0.90	-	1.25
L4	0.60	0.60	1.00
L5	1.70	1.60	1.90
R	0"	-	0"
R1	5"	7"	9"
R2	5"	7"	9"
R	-	0.100±0.01	-

NOTES  
 1. ALL DIMENSIONS REFER TO JEDEC STANDARD TO-252 AA.  
 2. DO NOT INCLUDE MOLD FLASH OR PROTRUSIONS.