

- ★ Super Low Gate Charge
- ★ 100% EAS Guaranteed
- ★ Green Device Available
- ★ Excellent CdV/dt effect decline
- ★ Advanced high cell density Trench technology

## Product Summary



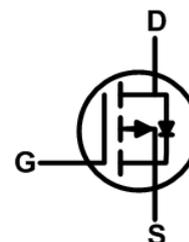
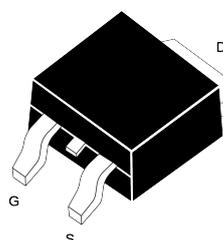
BVDSS	RDSON	ID
-100V	46mΩ	-35A

## Description

The JH35P10 is the high cell density trenched N-ch MOSFETs, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications.

The JH35P10 meet the RoHS and Green Product requirement 100% EAS guaranteed with full function reliability approved.

## TO-252 Pin Configuration



**Table 1. Absolute Maximum Ratings (T<sub>A</sub>=25°C unless otherwise noted)**

Symbol	Parameter	Limit	Unit
V <sub>DS</sub>	Drain-Source Voltage (V <sub>GS</sub> =0V)	-100	V
V <sub>GS</sub>	Gate-Source Voltage (V <sub>DS</sub> =0V)	±20	V
I <sub>D</sub>	Drain Current-Continuous(T <sub>C</sub> =25°C)	-35	A
	Drain Current-Continuous(T <sub>C</sub> =100°C)	-21	A
I <sub>DM (pluse)</sub>	Drain Current-Continuous@ Current-Pulsed (Note 1)	-120	A
P <sub>D</sub>	Maximum Power Dissipation(T <sub>C</sub> =25°C)	107	W
	Maximum Power Dissipation(T <sub>C</sub> =100°C)	53	W
E <sub>AS</sub>	Avalanche energy (Note 2)	361	mJ
T <sub>J</sub> , T <sub>STG</sub>	Operating Junction and Storage Temperature Range	-55 To 175	°C

**Table 2. Thermal Characteristic**

Symbol	Parameter	Typ	Max	Unit
R <sub>θJC</sub>	Thermal Resistance, Junction-to-Case		1.4	°C/W

**Table 3. Electrical Characteristics ( $T_J=25^\circ\text{C}$  unless otherwise noted)**

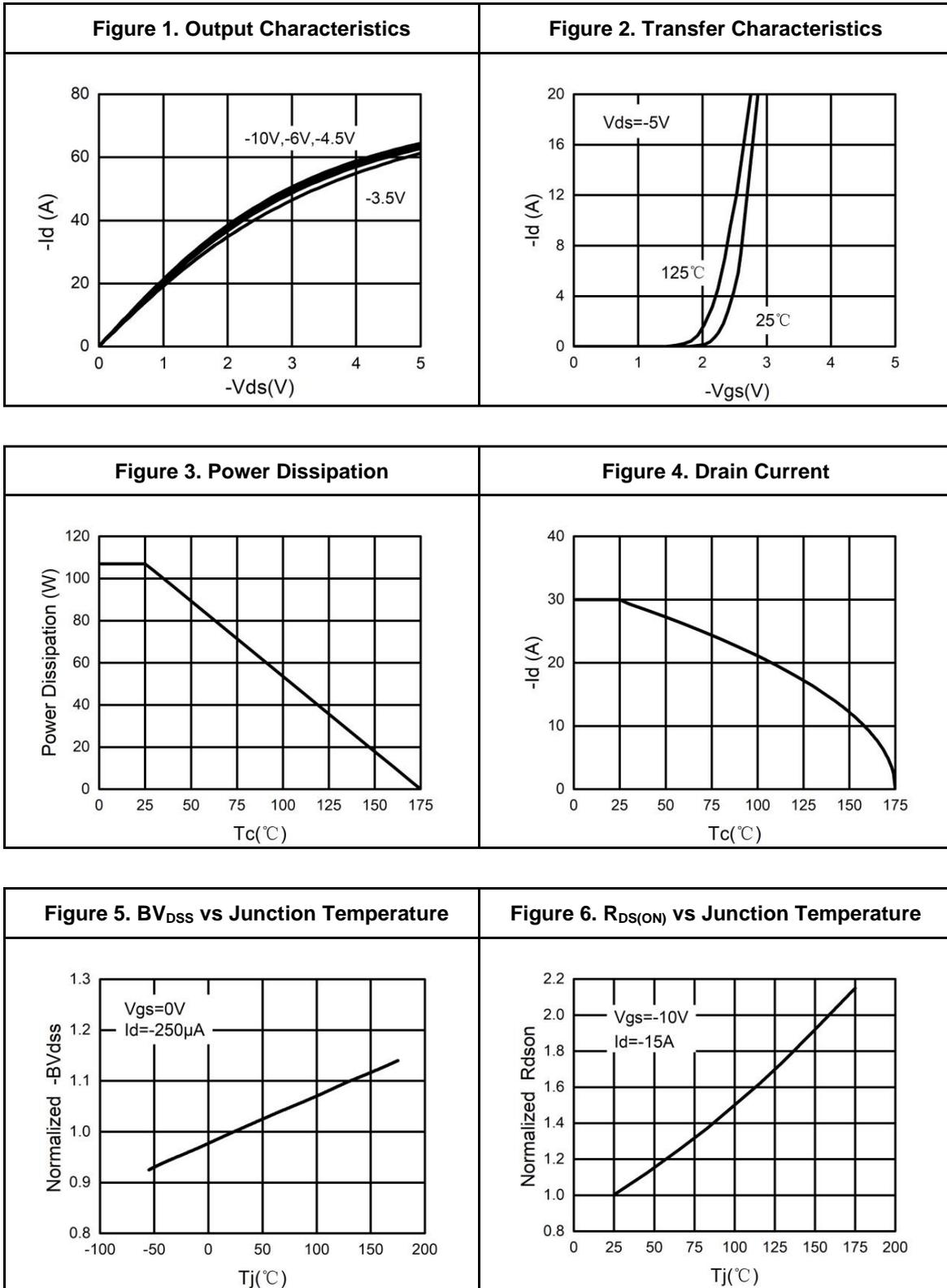
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
<b>On/Off States</b>						
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-100	-127		V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=-100V, V_{GS}=0V$			-1	$\mu A$
$I_{GSS}$	Gate-Body Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$			$\pm 100$	nA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1	-1.8	-2.5	V
$g_{FS}$	Forward Transconductance	$V_{DS}=-5V, I_D=-15A$		50		S
$R_{DS(ON)}$	Drain-Source On-State Resistance	$V_{GS}=-10V, I_D=-15A$		46	57.5	$m\Omega$
		$V_{GS}=-4.5V, I_D=-10A$		48	63	$m\Omega$
<b>Dynamic Characteristics</b>						
$C_{iss}$	Input Capacitance	$V_{DS}=-25V, V_{GS}=0V, f=1.0MHz$		8056		pF
$C_{oss}$	Output Capacitance			195		pF
$C_{rss}$	Reverse Transfer Capacitance			70		pF
<b>Switching Parameters</b>						
$t_{d(on)}$	Turn-on Delay Time	$V_{GS}=-10V, V_{DS}=-50V, R_L=3.3\Omega, R_{GEN}=9.1\Omega$		13		nS
$t_r$	Turn-on Rise Time			64		nS
$t_{d(off)}$	Turn-Off Delay Time			36		nS
$t_f$	Turn-Off Fall Time			52		nS
$Q_g$	Total Gate Charge	$V_{GS}=-10V, V_{DS}=-50V, I_D=-10A$		147		nC
$Q_{gs}$	Gate-Source Charge			17		nC
$Q_{gd}$	Gate-Drain Charge			31		nC
<b>Source-Drain Diode Characteristics</b>						
$I_{SD}$	Source-Drain Current (Body Diode)				-35	A
$V_{SD}$	Forward on Voltage (Note 3)	$V_{GS}=0V, I_S=-15A$			-1.2	V
$t_{rr}$	Reverse Recovery Time	$I_F=-15A, di/dt=100A/\mu s$		72		ns
$Q_{rr}$	Reverse Recovery Charge	$I_F=-15A, di/dt=100A/\mu s$		120		nC

Notes 1.Repetitive Rating: Pulse width limited by maximum junction temperature.

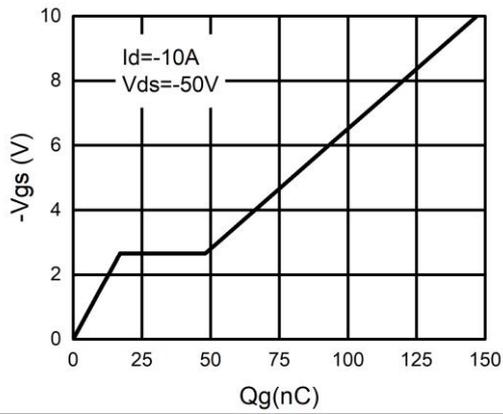
Notes 2.EAS condition:  $T_J=25^\circ\text{C}, V_{DD}=50V, V_{GS}=-10V, R_g=25\Omega, L=0.5mH$ .

Notes 3.Repetitive Rating: Pulse width limited by maximum junction temperature.

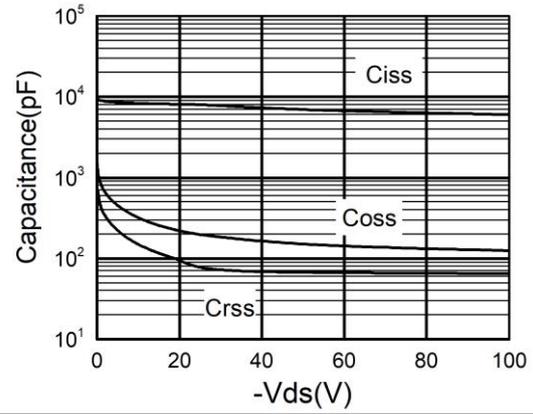
## Typical Electrical And Thermal Characteristics (Curves)



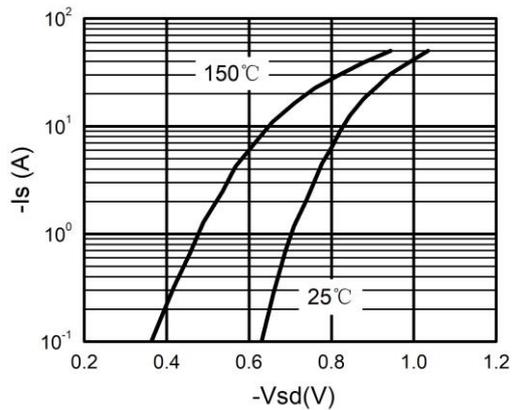
**Figure 7. Gate Charge Waveforms**



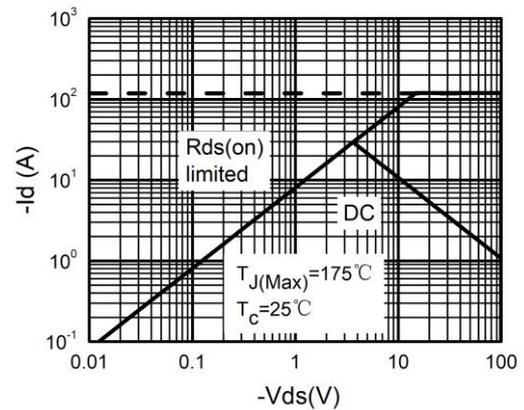
**Figure 8. Capacitance**



**Figure 9. Body-Diode Characteristics**

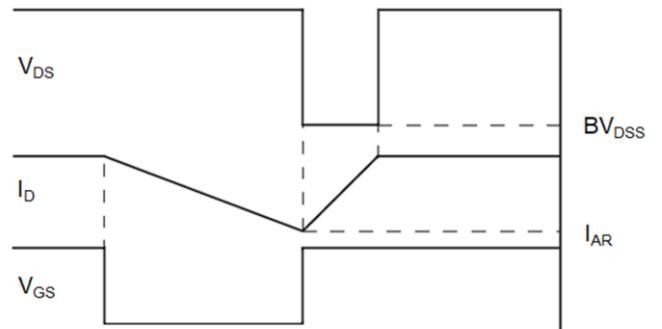
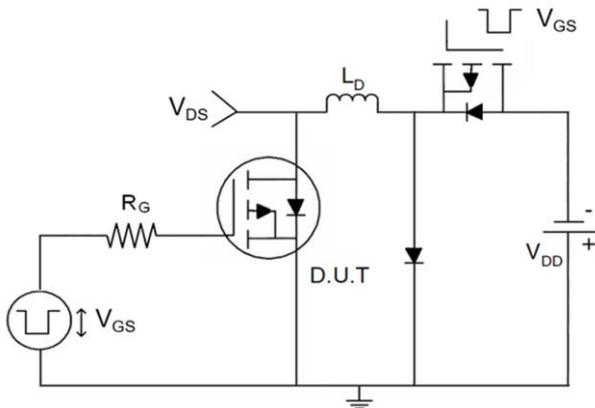


**Figure 10. Maximum Safe Operating Area**

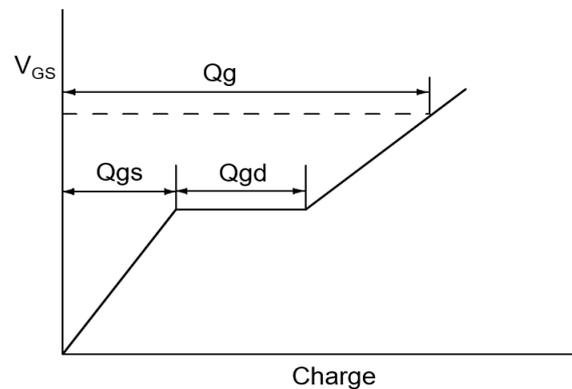
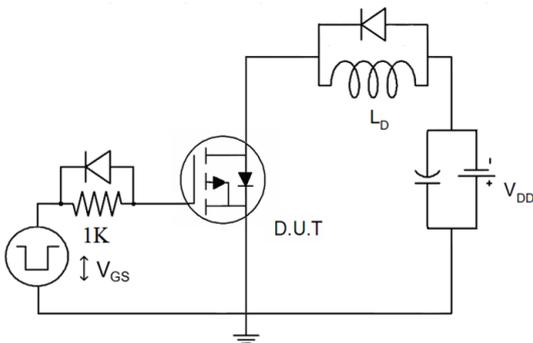


### Test Circuit

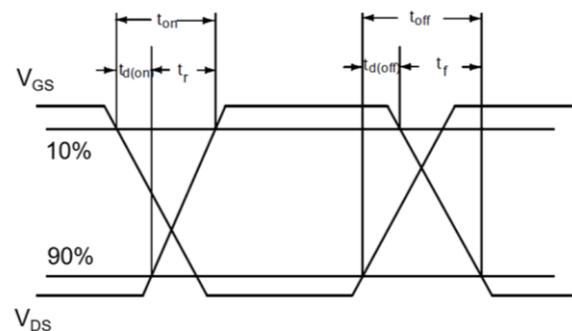
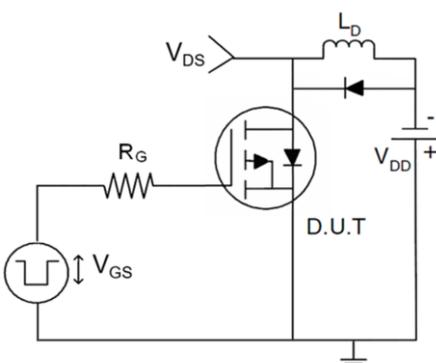
#### 1) $E_{AS}$ Test Circuits



#### 2) Gate Charge Test Circuit

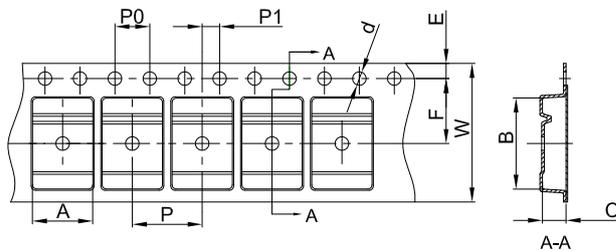


#### 3) Switch Time Test Circuit



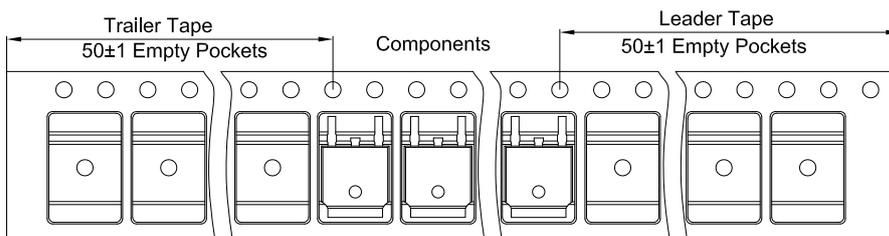
## TO-252-2L Tape and Reel

### TO-252 Embossed Carrier Tape

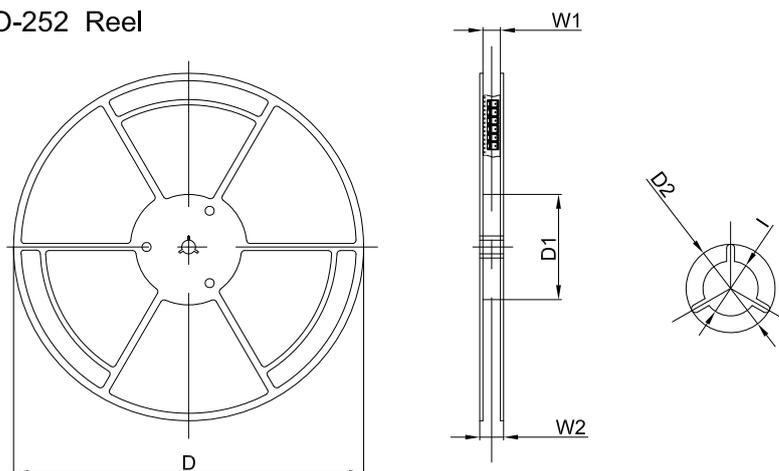


Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
TO-252	6.90	10.50	2.70	Ø1.55	1.75	7.50	4.00	8.00	2.00	16.00

### TO-252 Tape Leader and Trailer

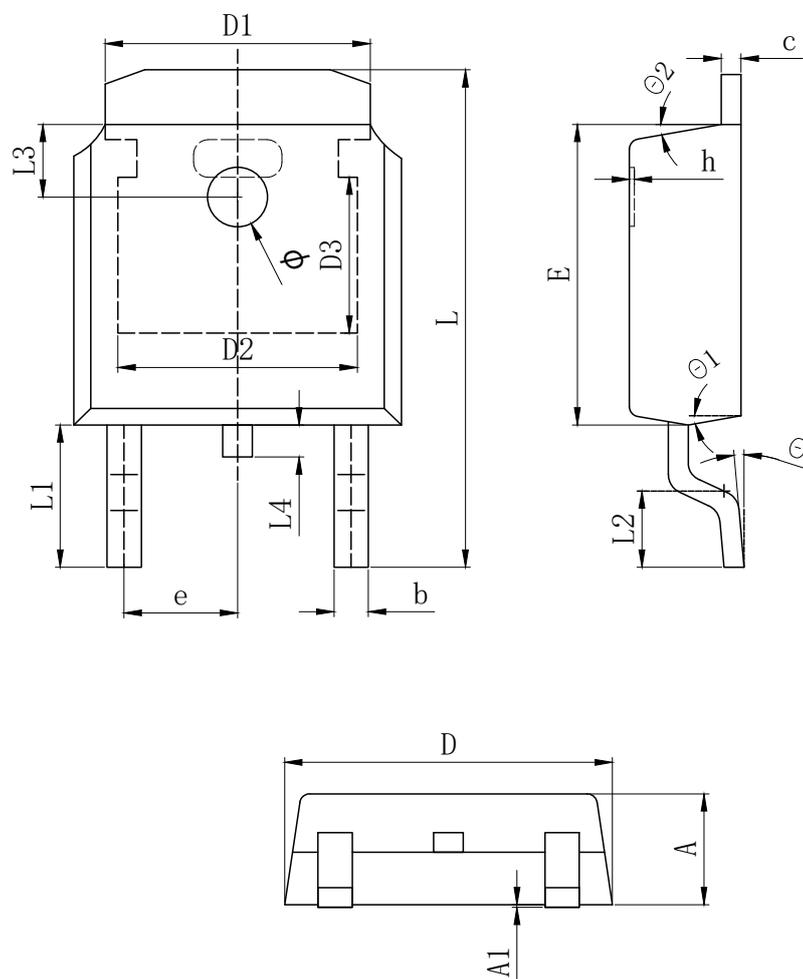


### TO-252 Reel



Dimensions are in millimeter						
Reel Option	D	D1	D2	W1	W2	I
13"Dia	330.00	100.00	Ø21.00	16.40	21.00	Ø13.00

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
2,500 pcs	13inch	2,500 pcs	340×336×29	25,000 pcs	353×346×365	



SYMBOL	MILLIMETER		
	MIN	Typ.	MAX
A	2.200	2.300	2.400
A1	0.000		0.127
b	0.640	0.690	0.740
c (电镀后)	0.460	0.520	0.580
D	6.500	6.600	6.700
D1	5.334 REF		
D2	4.826 REF		
D3	3.166 REF		
E	6.000	6.100	6.200
e	2.286 TYP		
h	0.000	0.100	0.200
L	9.900	10.100	10.300
L1	2.888 REF		
L2	1.400	1.550	1.700
L3	1.600 REF		
L4	0.600	0.800	1.000
Φ	1.100	1.200	1.300
θ	0°		8°
θ 1	9° TYP		
θ 2	9° TYP		

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