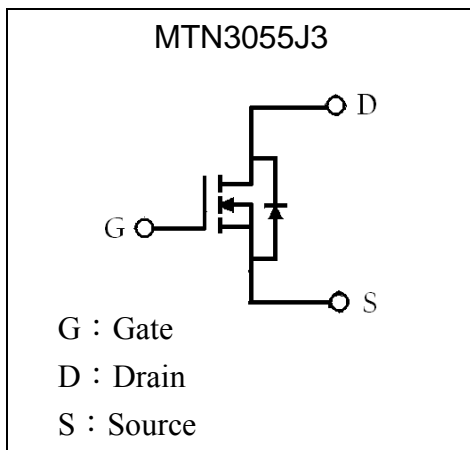
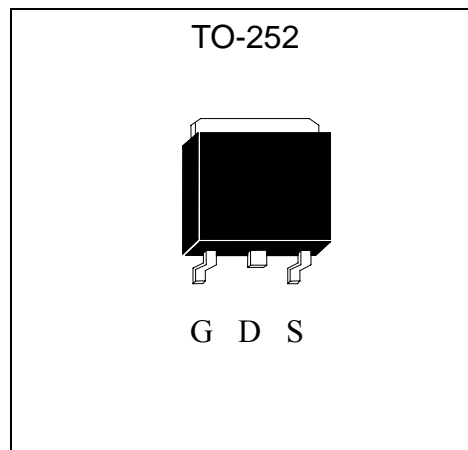


N-Channel Enhancement Mode Power MOSFET

MTN3055J3

Features

- Single Drive Requirement
- Low On-resistance
- Fast Switching Characteristic
- Pb-free package

Symbol

Outline

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	V _{DS}	30	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current @V _{GS} =10V, T _c =25°C	I _D	15	A
Continuous Drain Current @V _{GS} =10V, T _c =100°C	I _D	9	A
Pulsed Drain Current	I _{DM}	50 *1	A
Total Power Dissipation (T _c =25°C)	P _d	28	W
Linear Derating Factor		0.22	W/°C
Operating Junction and Storage Temperature	T _j , T _{stg}	-55~+150	°C

Note : *1. Pulse width limited by safe operating area



Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-case, max	$R_{th,j-c}$	4.8	°C/W
Thermal Resistance, Junction-to-ambient, max	$R_{th,j-a}$	110	°C/W

Characteristics (T_j=25°C, unless otherwise specified)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV_{DSS}	30	-	-	V	$V_{GS}=0, I_D=250\mu A$
$\Delta BV_{DSS}/\Delta T_j$	-	0.037	-	V/°C	Reference to 25°C, $I_D=1mA$
$V_{GS(th)}$	1.0	-	3.0	V	$V_{DS} = V_{GS}, I_D=250\mu A$
G_{FS}	-	4	-	S	$V_{DS} = 10V, I_D=6A$
I_{GSS}	-	-	±100	nA	$V_{GS}=\pm 20$
I_{DSS}	-	-	1	μA	$V_{DS} = 30V, V_{GS} = 0$
I_{DSS}	-	-	25	μA	$V_{DS} = 24V, V_{GS} = 0, T_j=150^\circ C$
* $R_{DS(ON)}$	-	-	26	mΩ	$V_{GS} = 10V, I_D=8A$
* $R_{DS(ON)}$	-	-	40	mΩ	$V_{GS} = 4.5V, I_D=6A$
Dynamic					
* Q_g	-	4.6	-	nC	$I_D=8A, V_{DS}=24V, V_{GS}=5V$
* Q_{gs}	-	1.1	-		
* Q_{gd}	-	3	-		
* $t_{d(ON)}$	-	4.9	-	ns	$V_{DS}=15V, I_D=8A, V_{GS}=10V,$ $R_G=3.4\Omega, R_D=1.9\Omega$
* t_r	-	22.5	-		
* $t_{d(OFF)}$	-	12.2	-		
* t_f	-	3.3	-		
C_{iss}	-	160	-	pF	$V_{GS}=0V, V_{DS}=25V, f=1MHz$
C_{oss}	-	107	-		
C_{rss}	-	32	-		
Source-Drain Diode					
* V_{SD}	-	-	1.3	V	$I_S=15A, V_{GS}=0V$
* I_S	-	-	15	A	$V_D=V_G=0, V_S=1.3V$

*Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

Ordering Information

Device	Package	Shipping	Marking
MTN3055J3	TO-252 (Pb-free)	2500 pcs / Tape & Reel	3055

Characteristic Curves

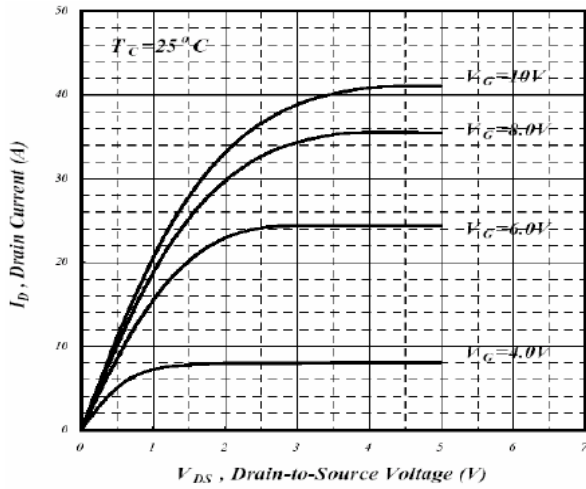


Fig 1. Typical Output Characteristics

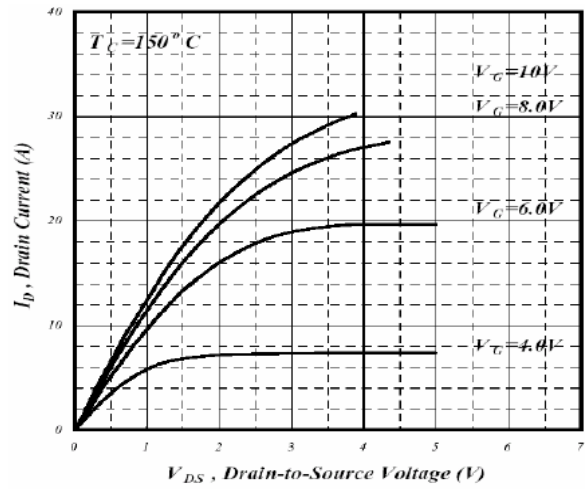


Fig 2. Typical Output Characteristics

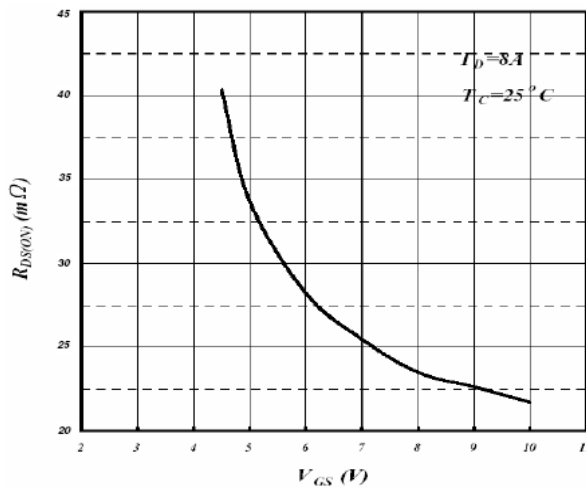


Fig 3. On-Resistance v.s. Gate Voltage

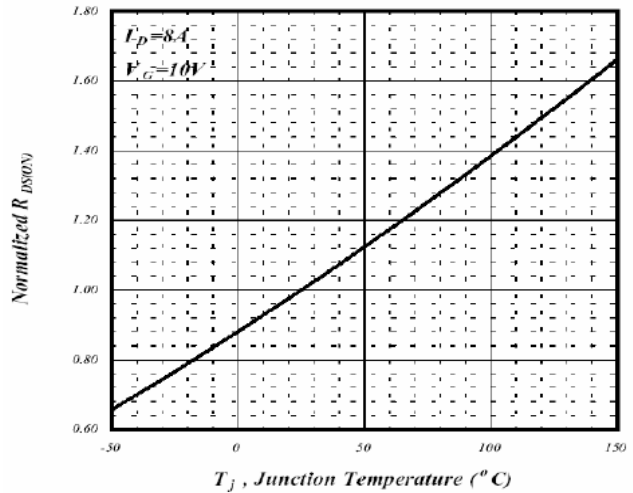


Fig 4. Normalized On-Resistance v.s. Junction Temperature

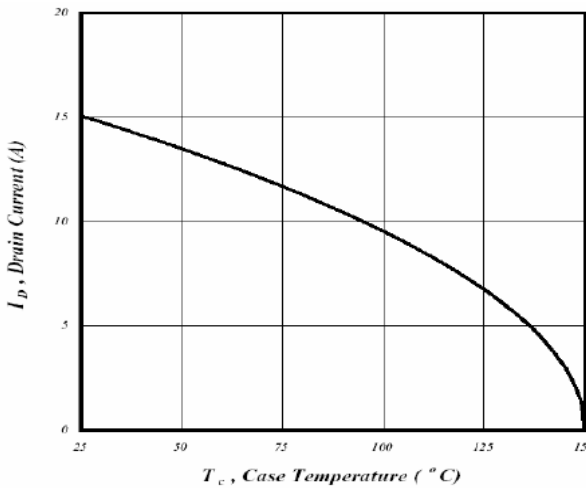


Fig 5. Maximum Drain Current v.s. Case Temperature

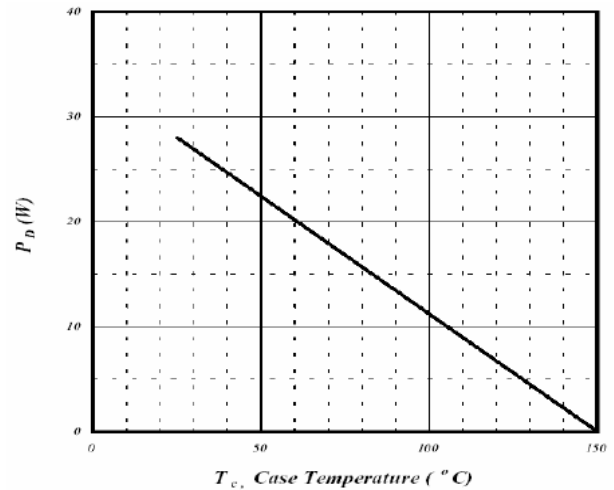


Fig 6. Type Power Dissipation

Characteristic Curves(Cont.)

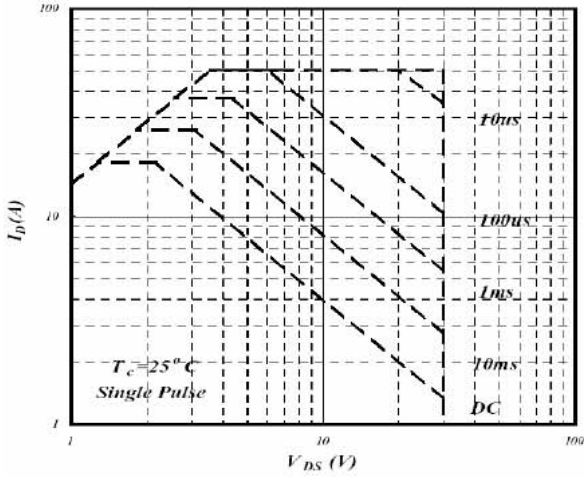


Fig 7. Maximum Safe Operating Area

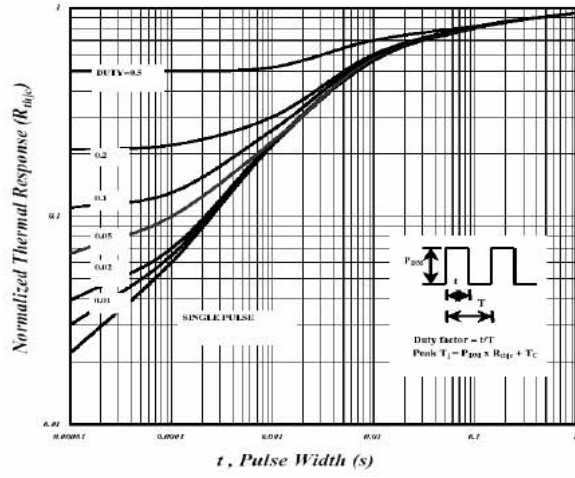


Fig 8. Effective Transient Thermal Impedance

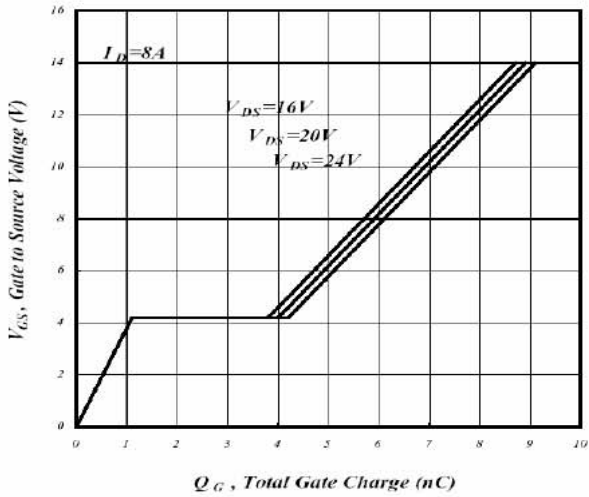


Fig 9. Gate Charge Characteristics

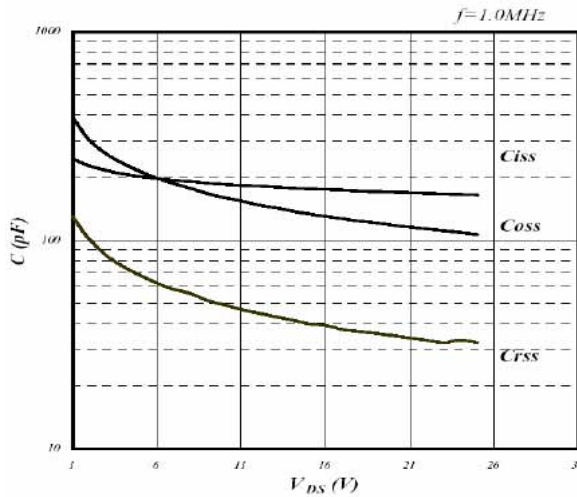


Fig 10. Typical Capacitance Characteristics

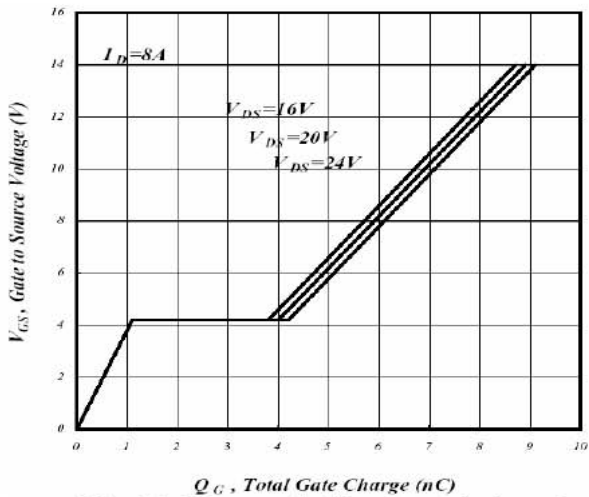


Fig 11. Forward Characteristics of Reverse Diode

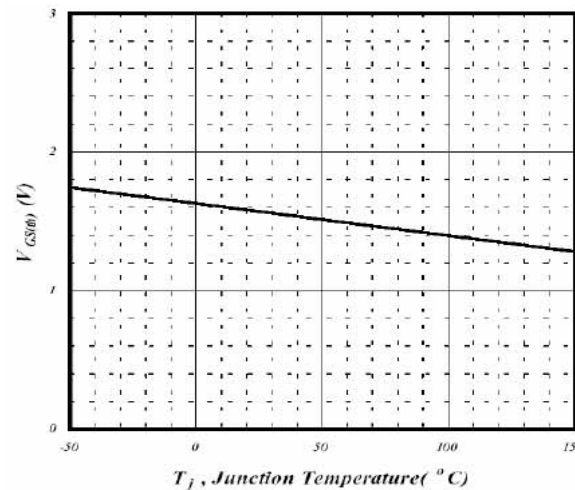


Fig 12. Gate Threshold Voltage v.s. Junction Temperature

Characteristic Curves(Cont.)

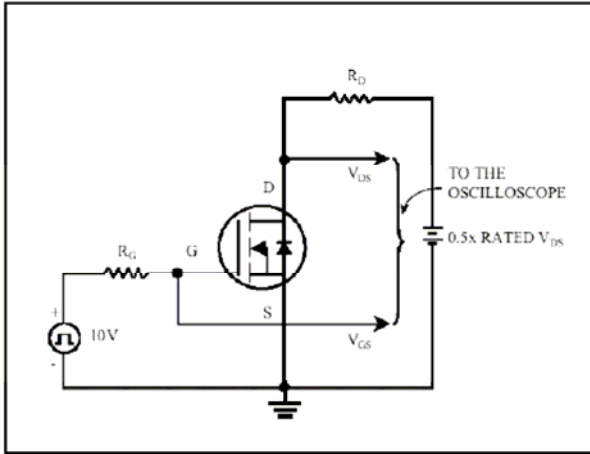


Fig 13. Switching Time Circuit

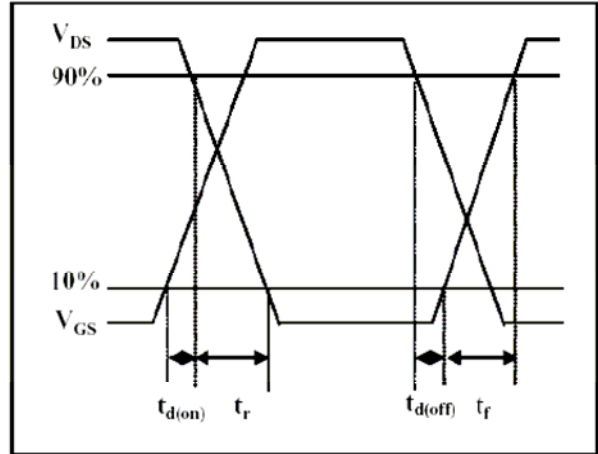


Fig 14. Switching Time Waveform

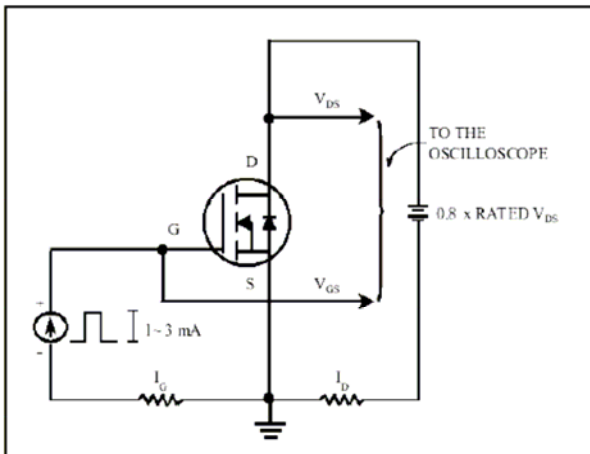


Fig 15. Gate Charge Circuit

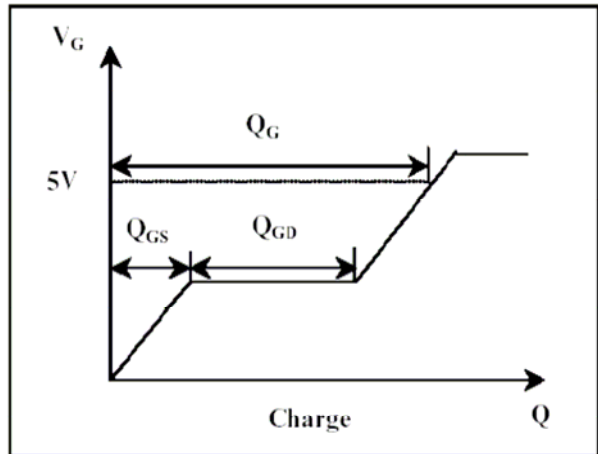
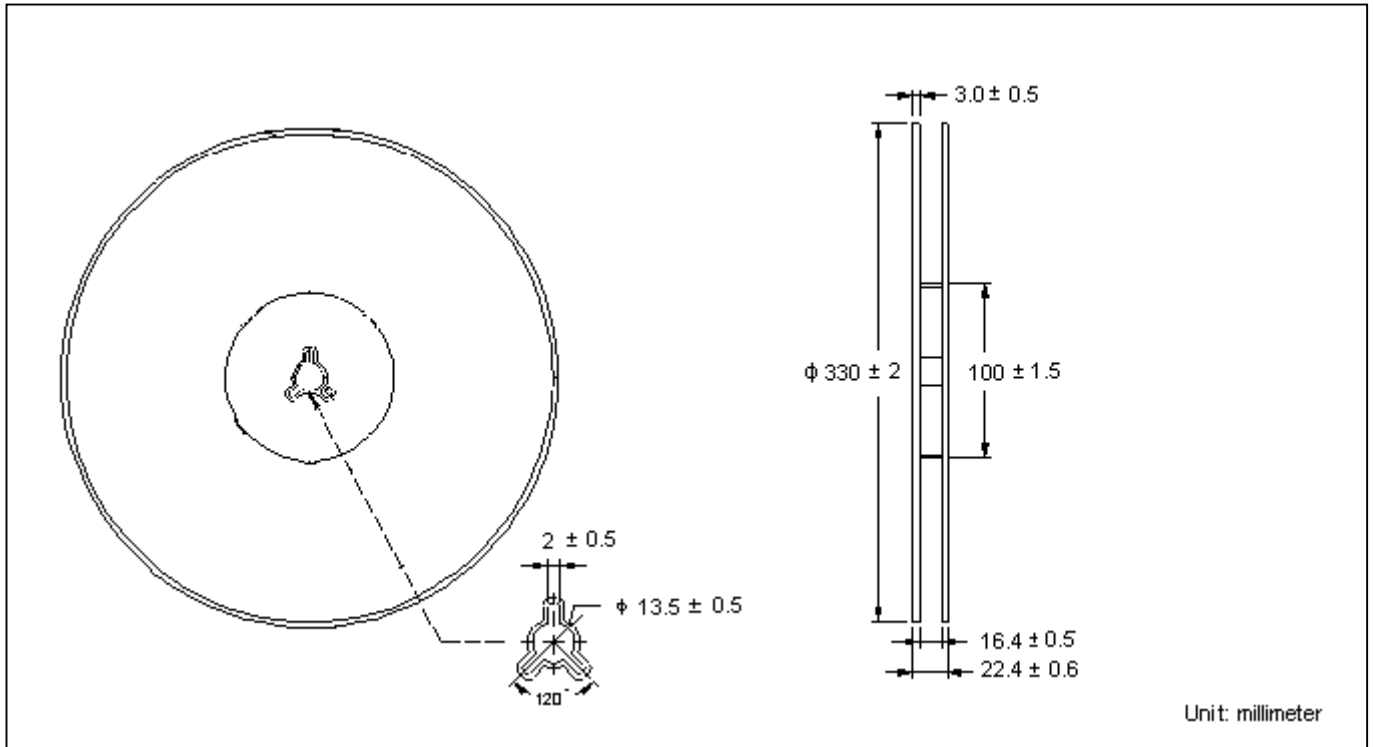
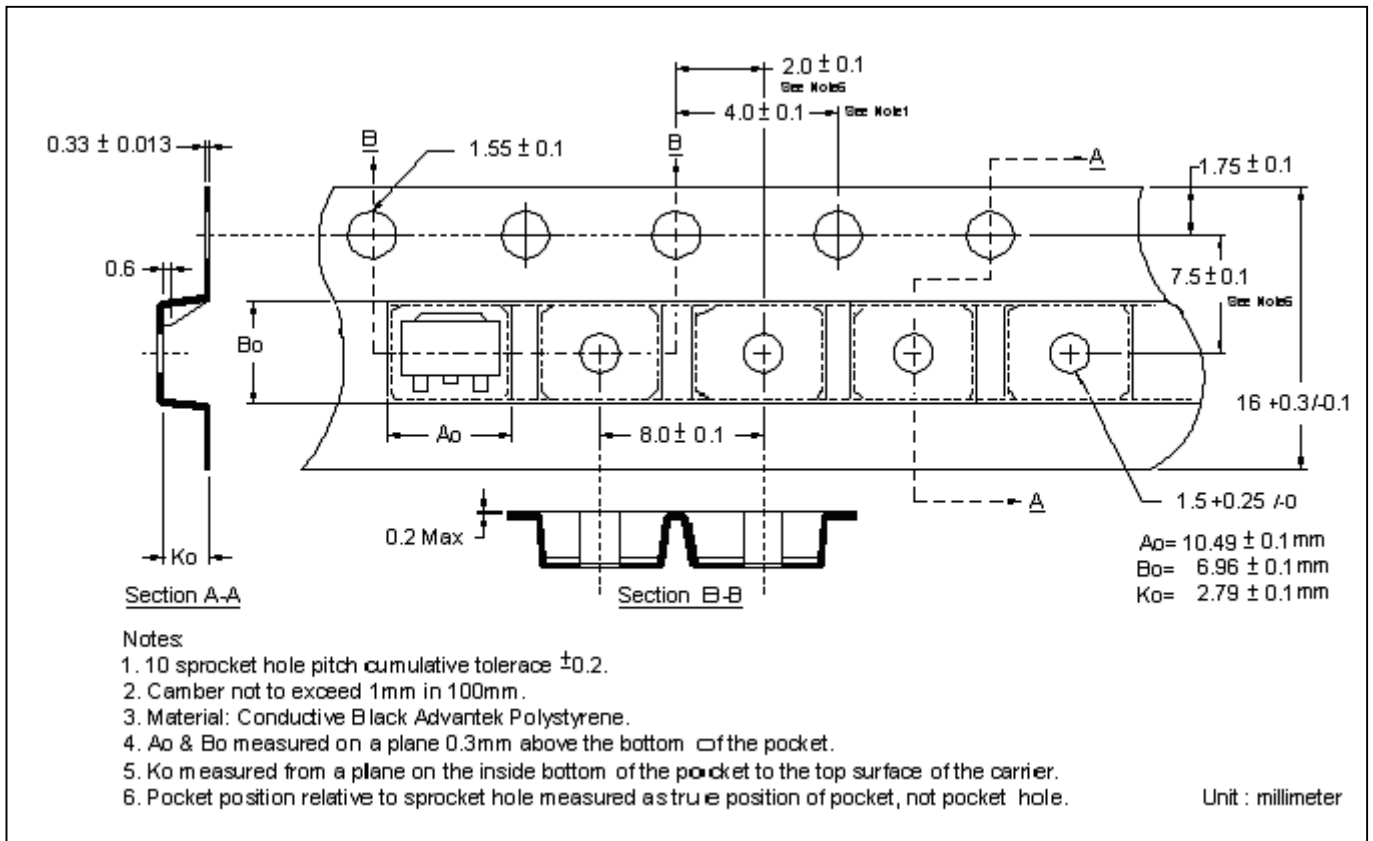


Fig 16. Gate Charge Waveform

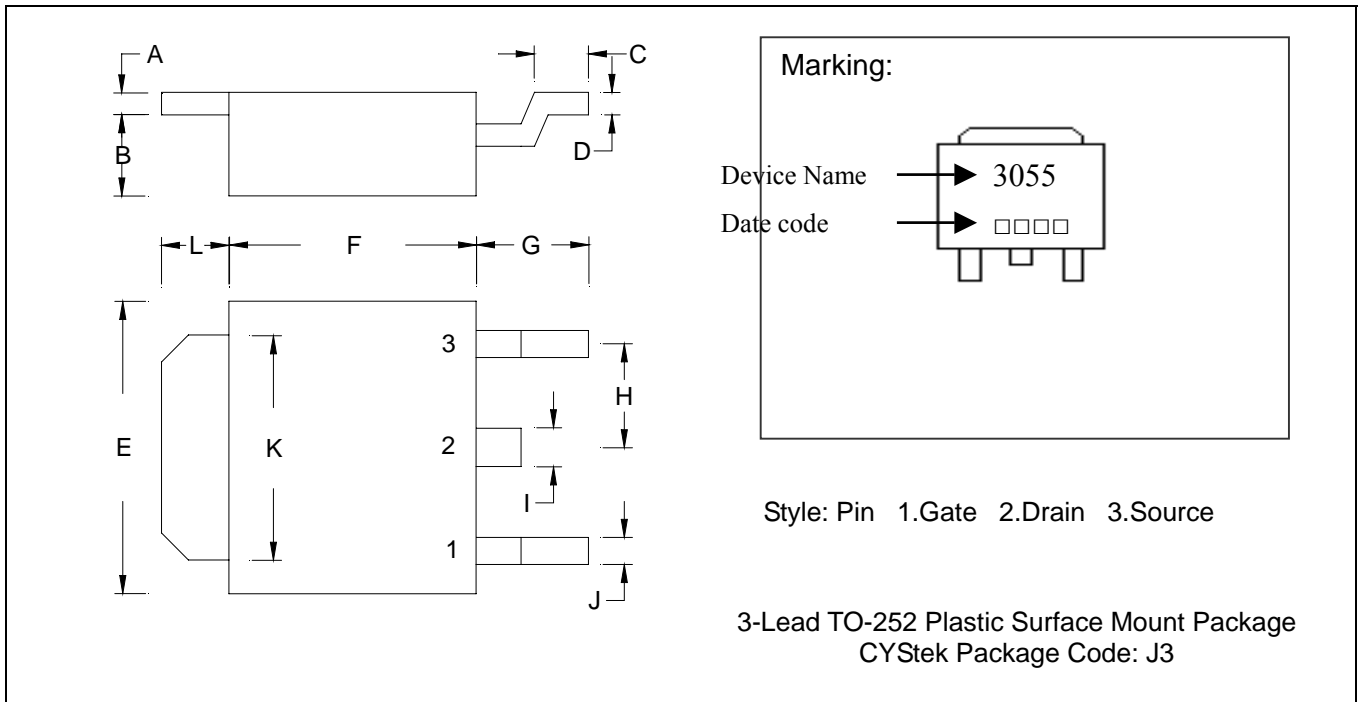
Reel Dimension



Carrier Tape Dimension



TO-252 Dimension



*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.0177	0.0217	0.45	0.55	G	0.0866	0.1102	2.20	2.80
B	0.0650	0.0768	1.65	1.95	H	-	*0.0906	-	*2.30
C	0.0354	0.0591	0.90	1.50	I	-	0.0354	-	0.90
D	0.0177	0.0236	0.45	0.60	J	-	0.0315	-	0.80
E	0.2520	0.2677	6.40	6.80	K	0.2047	0.2165	5.20	5.50
F	0.2125	0.2283	5.40	5.80	L	0.0551	0.0630	1.40	1.60

Notes: 1.Controlling dimension: millimeters.
 2.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.
 3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

Material:

- Lead: 42 Alloy; solder plating
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0

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