ESD protected N-CHANNEL MOSFET

MTNK3C3

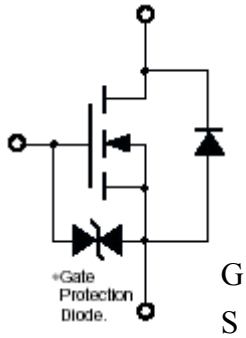
BV_{DSS}	20V
I_D@V_{GS}=4.5V, T_A=25°C	100mA
R_{DSON}@ V_{GS}=4.5V, I_D=100mA	3Ω(max)

Description

- Low voltage drive, 1.8V.
- Easy to use in parallel.
- High speed switching.
- ESD protected device.
- Pb-free lead plating and halogen-free package.

Symbol

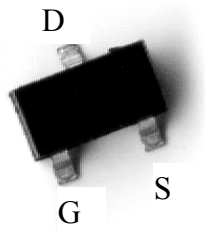
MTNK3C3



G：Gate
S：Source
D：Drain

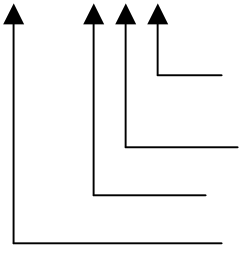
Outline

SOT-523



Ordering Information

Device	Package	Shipping
MTNK3C3-0-T1-G	SOT-523 (Pb-free lead plating and halogen-free package)	3000 pcs / tape & reel



Environment friendly grade : S for RoHS compliant products, G for RoHS compliant and green compound products

Packing spec, T1 : 3000 pcs / tape & reel,7” reel

Product rank, zero for no rank products

Product name

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	BV_{DSS}	20	V
Gate-Source Voltage	V_{GS}	±8	
Continuous Drain Current @V_{GS}=4.5V, T_A=25°C	I_D	100	mA
Pulsed Drain Current	I_{DM}	400 *1	
Total Power Dissipation	P_D	150 *2	mW
ESD susceptibility	V_{ESD}	350 *3	V
Operating Junction and Storage Temperature Range	Tj ; Tstg	-55~+150	°C
Thermal Resistance, Junction-to-Ambient	Rth,ja	833	°C/W

Note : *1. Pulse Width ≤ 300μs, Duty cycle ≤2%.
*2. When device mounted on recommended land pattern.
*3. Human body model, 1.5kΩ in series with 100pF.

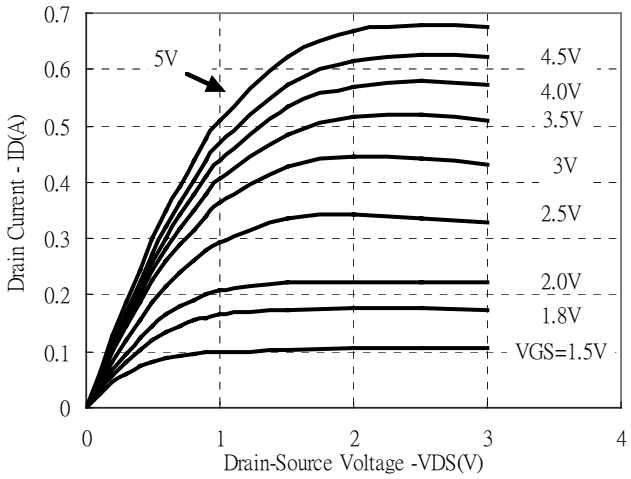
Electrical Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Static					
BV_{DSS}	20	-	-	V	V_{GS}=0V, I_D=100μA
$V_{GS(th)}$	0.5	-	1.0		V_{DS}=V_{GS}, I_D=250μA
I_{GSS}	-	-	±1	μA	V_{GS}=±8V, V_{DS}=0V
I_{DSS}	-	-	500	nA	V_{DS}=20V, V_{GS}=0V
$R_{DS(ON)}$	-	1.7	3	Ω	V_{GS}=4.5V, I_D=100mA
	-	3.5	6		V_{GS}=1.8V, I_D=20mA
G_{FS}	100	-	-	mS	V_{DS}=5V, I_D=100mA
Dynamic					
C_{iss}	-	23	50	pF	V_{DS}=10V, V_{GS}=0V, f=1MHz
C_{oss}	-	7.7	25		
C_{rss}	-	5.8	12		
Source-Drain Diode					
*V_{SD}	-	-	1	V	V_{GS}=0V, I_S=10mA

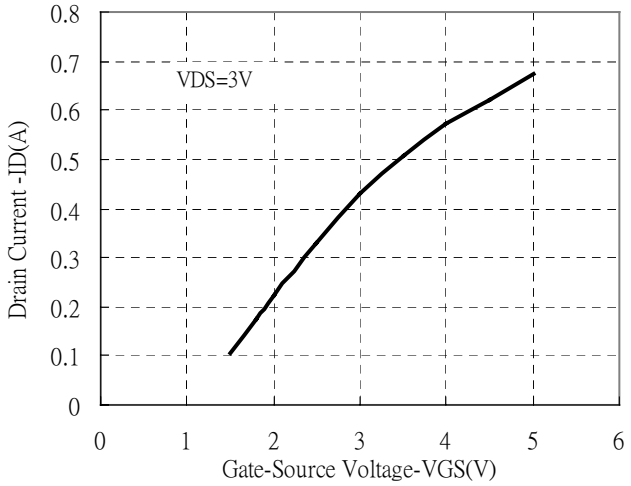
*Pulse Test : Pulse Width ≤300μs, Duty Cycle≤2%

Typical Characteristics

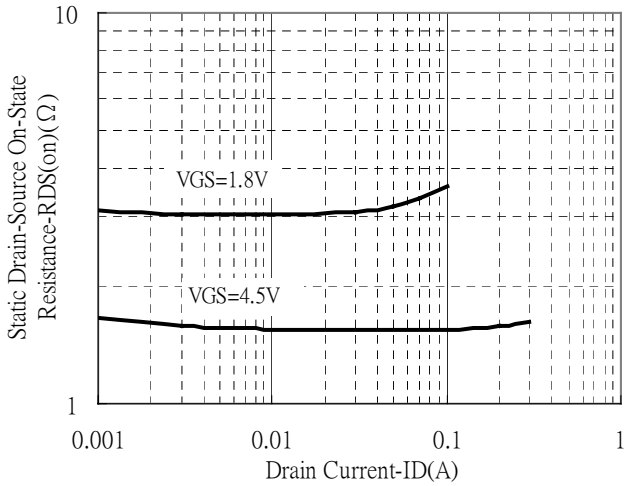
Typical Output Characteristics



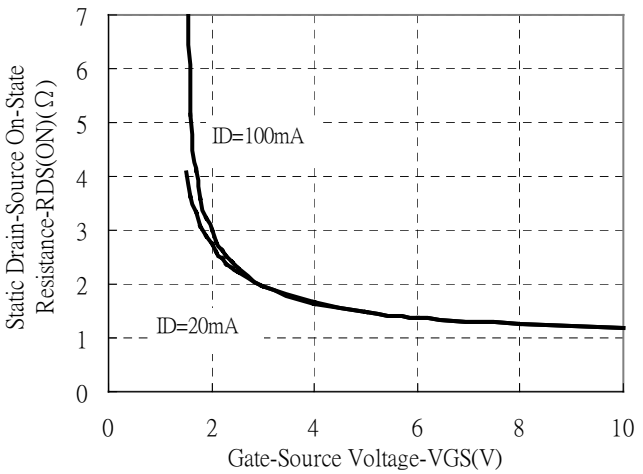
Typical Transfer Characteristics



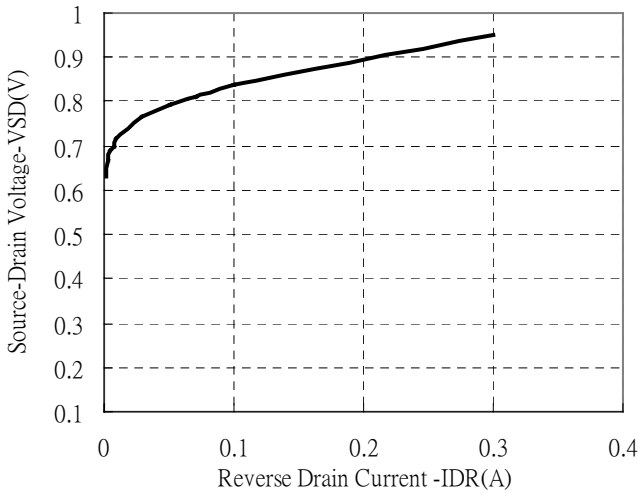
Static Drain-Source On-State resistance vs Drain Current



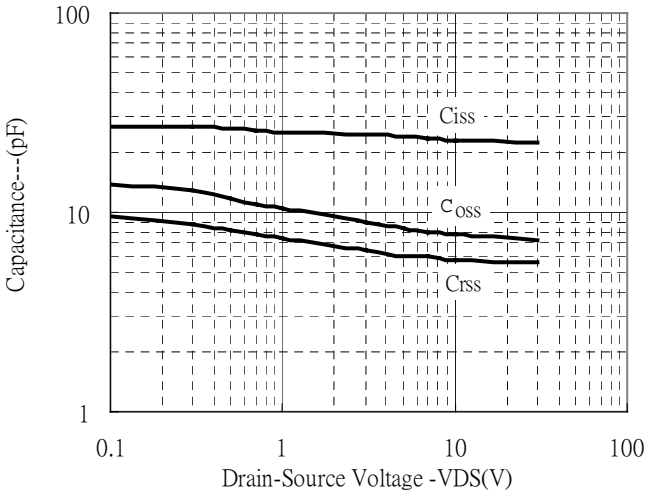
Static Drain-Source On-State Resistance vs Gate-Source Voltage



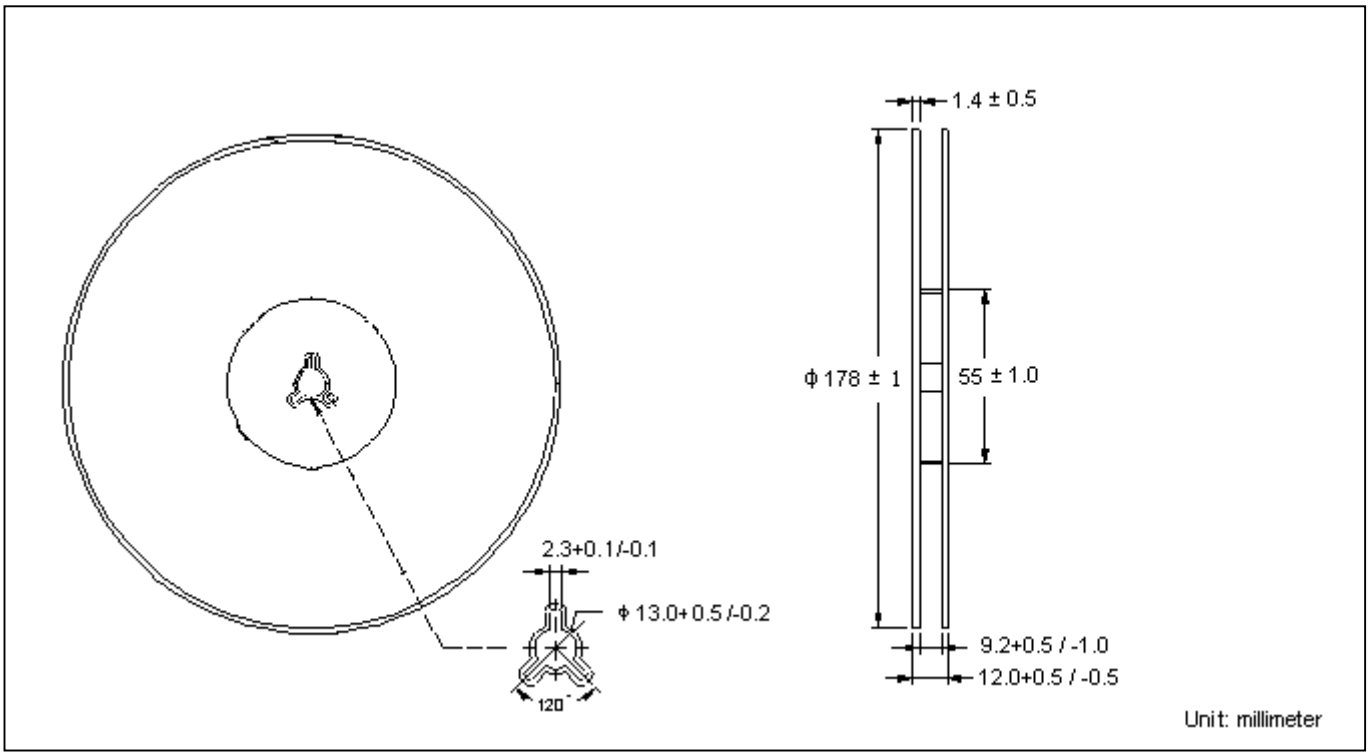
Reverse Drain Current vs Source-Drain Voltage



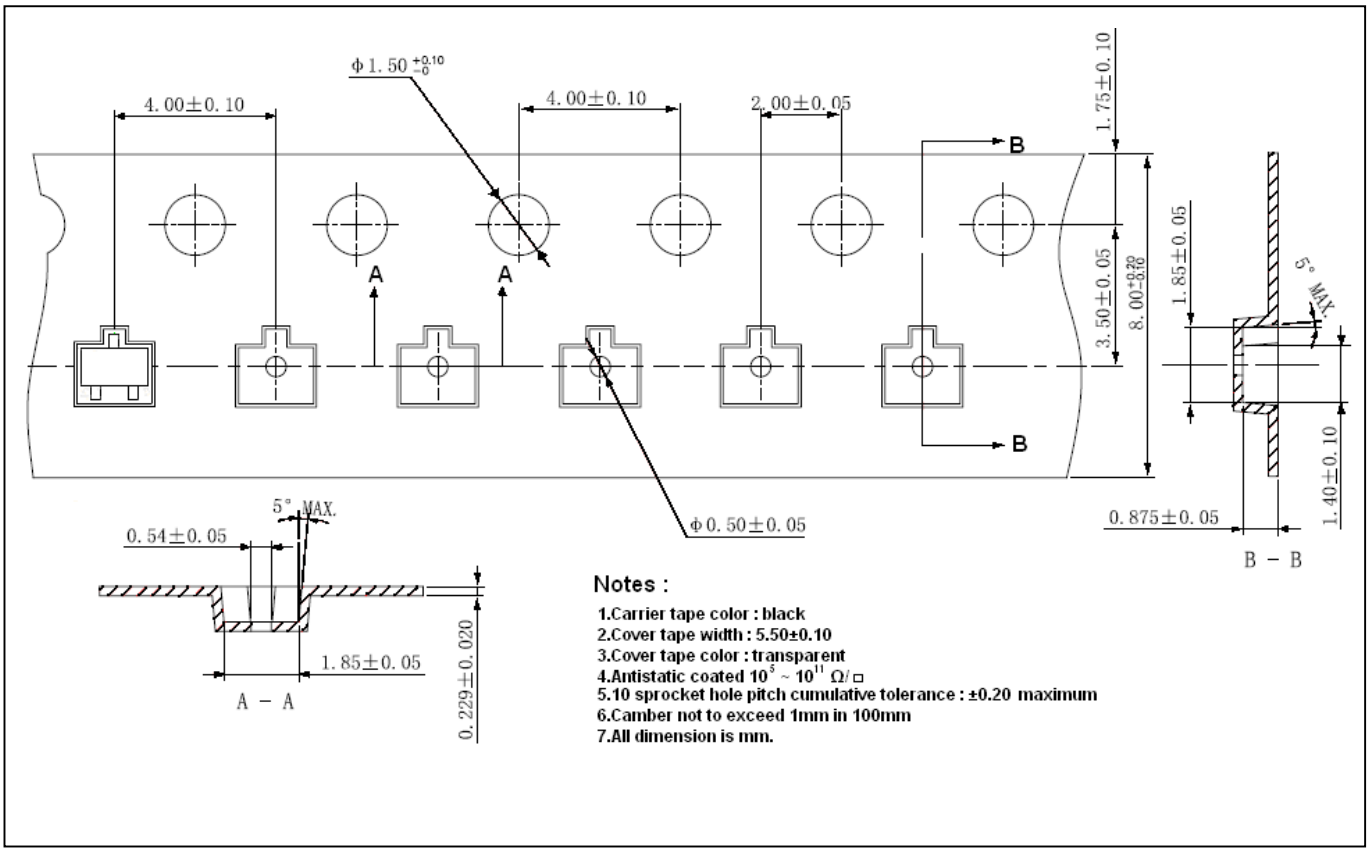
Capacitance vs Drain-to-Source Voltage



Reel Dimension



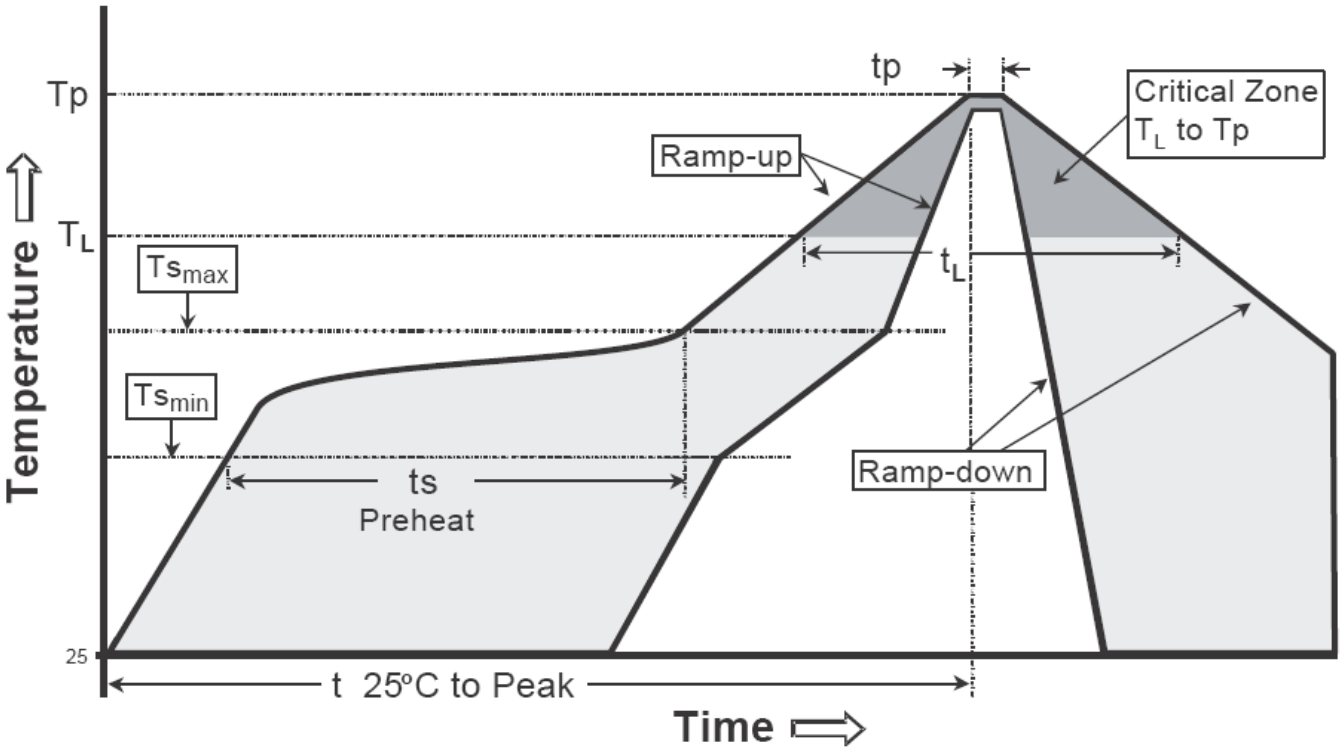
Carrier Tape Dimension



Recommended wave soldering condition

Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

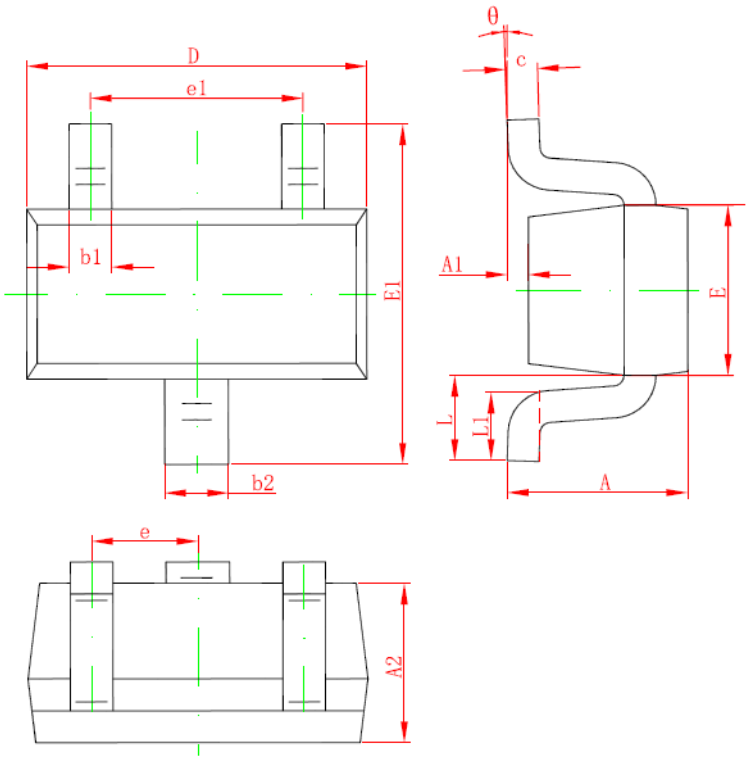
Recommended temperature profile for IR reflow

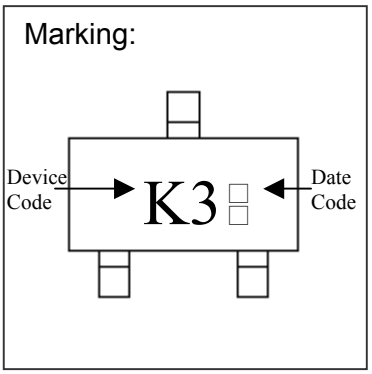


Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat −Temperature Min(T_S min) −Temperature Max(T_S max) −Time($t_{s\ min}$ to $t_{s\ max}$)	 100°C 150°C 60-120 seconds	 150°C 200°C 60-180 seconds
Time maintained above: −Temperature (T_L) − Time (t_L)	 183°C 60-150 seconds	 217°C 60-150 seconds
Peak Temperature(T_P)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(tp)	10-30 seconds	20-40 seconds
Ramp down rate	6°C/second max.	6°C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

Note : All temperatures refer to topside of the package, measured on the package body surface.

SOT-523 Dimension





3-Lead SOT-523 Plastic
Surface Mounted Package
CYStek Package Code: C3

Style: Pin 1.Gate 2.Source 3.Drain

DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035	E	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004	E1	1.450	1.750	0.057	0.069
A2	0.700	0.800	0.028	0.031	e	0.500 TYP		0.020 TYP	
b1	0.150	0.250	0.006	0.010	e1	0.900	1.100	0.035	0.043
b2	0.250	0.350	0.010	0.014	L	0.400 REF		0.016 REF	
c	0.100	0.200	0.004	0.008	L1	0.260	0.460	0.010	0.018
D	1.500	1.700	0.059	0.067	θ	0°	8°	0°	8°

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: Pure tin plated
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0