V_{DSS}	700	V
I_D	12	A
$R_{DS(ON)}$	0.38	Ω

Features

Ultra low $R_{DS(on)}$
Ultra low gate charge (typ. Q_g=23.5nC)
100% UIS tested
RoHS compliant

GK XXX
C70R330

Applications

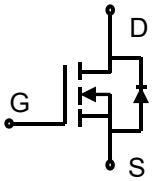
Power factor correction (PFC).
Switched mode power supplies (SMPS).
Uninterruptible power supply (UPS).

LOGO GK XXX CODE
C70 R 330
VDSS $R_{DS(on)}$

TO-252



Equivalent Circuit



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings (@ T = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	700	V
Continuous drain current [1] (T_C = 25°C)	I_D	12	A
(T_C = 100°C)		7.6	A
Pulsed drain current [2]	I_{DM}	36	A
Gate-Source voltage	V_{GSS}	±30	V
Avalanche energy, single pulse [3]	E_{AS}	132.3	mJ
Power Dissipation	P_D	134	W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C
Continuous diode forward current	I_S	12	A
Diode pulse current	$I_{S,pulse}$	36	A

Electrical Characteristics (T_J=25℃unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static characteristics						
Drain-source breakdown voltage	BV_{DSS}	V_{GS}=0V, I_D=250uA	700	-	-	V
Gate threshold voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250uA	3.0	3.5	4.0	V
Drain cut-off current	I_{DSS}	V_{DS}=700V, V_{GS}=0 V,T_j =25°C	-	-	1	μA
Gate leakage current, Forward	I_{GSSF}	V_{GS}=30V, V_{DS}=0 V	-	-	100	nA
Gate leakage current, Reverse	I_{GSSR}	V_{GS}=-30V, V_{DS}=0 V	-	-	-100	nA
Drain-source on-state resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=6A T_j = 25°C T_j = 150°C	- - -	 0.33 0.82	 0.38 -	Ω
Gate resistance	R_G	f=1 MHz, open drain	-	6.01	-	Ω
Dynamic characteristics						
Input capacitance	C_{iss}	V_{DS} =100V, V_{GS}=0V, f=250kHz	-	1010.29	-	pF
Output capacitance	C_{oss}		-	39.82	-	
Reverse transfer capacitance	C_{rss}		-	0.6	-	
Turn-on delay time	$t_{d(on)}$	V_{DD} =400V, I_D=6A R_G = 10Ω, V_{GS}=10V	-	52.9	-	ns
Rise time	t_r		-	13.6	-	
Turn-off delay time	$t_{d(off)}$		-	45.4	-	
Fall time	t_f		-	7.5	-	
Gate charge characteristics						
Gate to source charge	Q_{gs}	V_{DD}=560V, I_D=6A, V_{GS}=0 to 10 V	-	5.4	-	nC
Gate to drain charge	Q_{gd}		-	10.2	-	
Gate charge total	Q_g		-	23.5	-	
Gate plateau voltage	$V_{plateau}$		-	5.6	-	V
Reverse diode characteristics						
Diode forward voltage	V_{SD}	V_{GS}=0 V, I_F=6A	-	-	1.1	V
Reverse recovery time	t_{rr}	V_R=400V, I_F=6A, dI_F/dt=100 A/μs	-	272	-	ns
Reverse recovery charge	Q_{rr}		-	2474.6	-	nC
Peak reverse recovery current	I_{rrm}		-	19.99	-	A

Notes:

1. Limited by maximum junction temperature and duty cycle.
2. Limited by maximum junction temperature, maximum duty cycle is 0.75.
3. I_{AS}=2.1A, L=60mH, V_{DD}=60V, Starting Tj= 25°C.
4. The value of R_{thJA} is measured by placing the device in a still air box which is one cubic foot.

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	0.93	°C/W
Thermal Resistance, Junction-to-Ambient, minimal Footprint [4)]	$R_{\theta JA}$	62	°C/W
Soldering temperature, wave soldering only allowed at leads. (1.6mm from case for 10s)	T_{sold}	260	°C

RATING AND CHARACTERISTIC CURVES

Fig 1:Output Characteristics

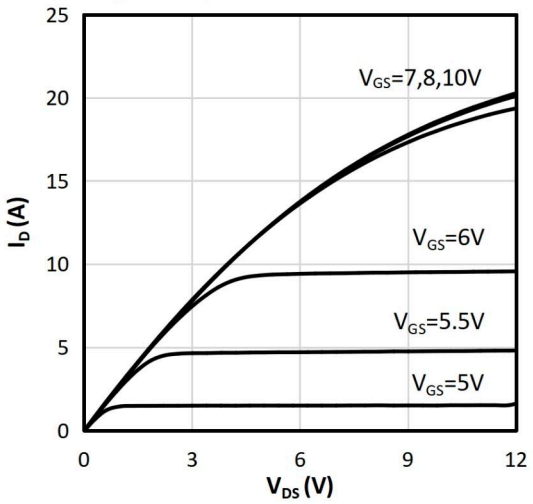


Fig 2: Transfer Characteristics

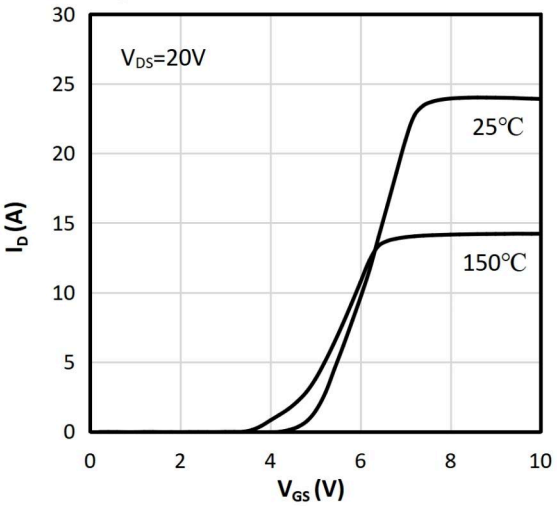


Fig 3: Rds(on) vs Drain Current

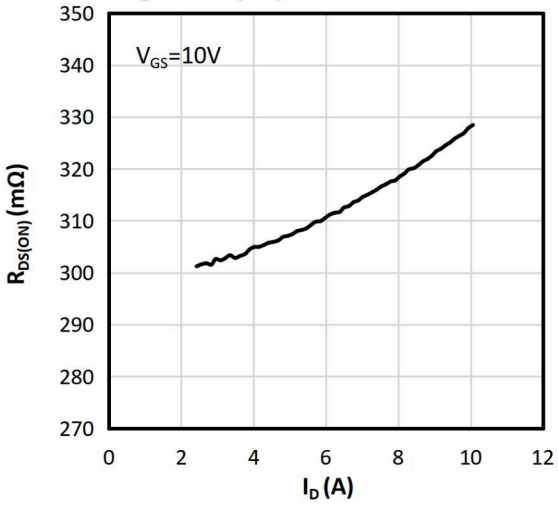


Fig 4: Rds(on) vs. Temperature

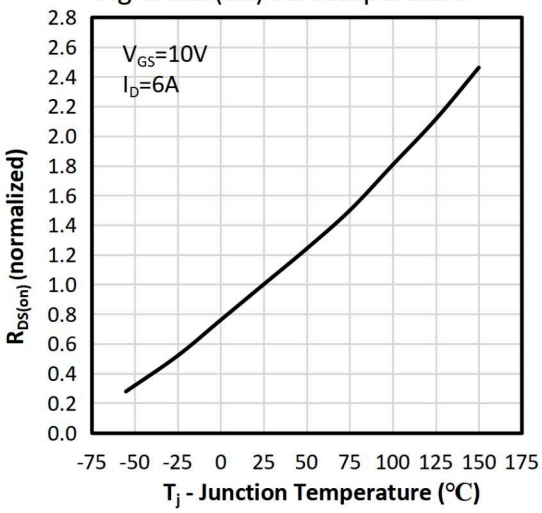


Fig 5: Breakdown Voltage vs. Temperature

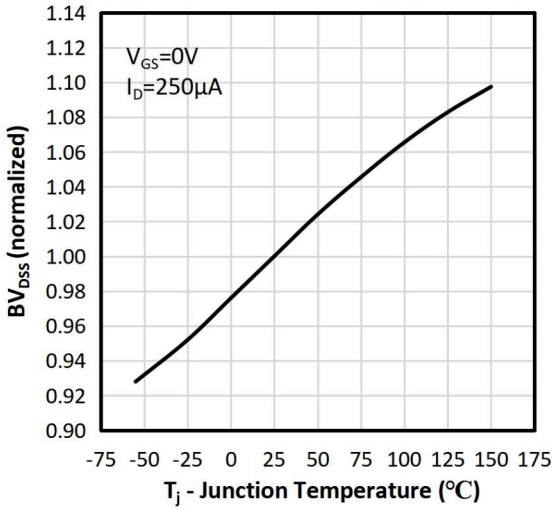
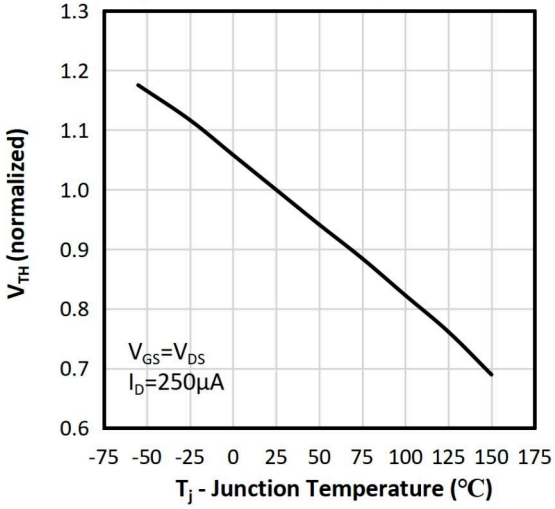


Fig 6: Threshold voltage vs. Temperature



RATING AND CHARACTERISTIC CURVES

Fig 7: Body-Diode Characteristics

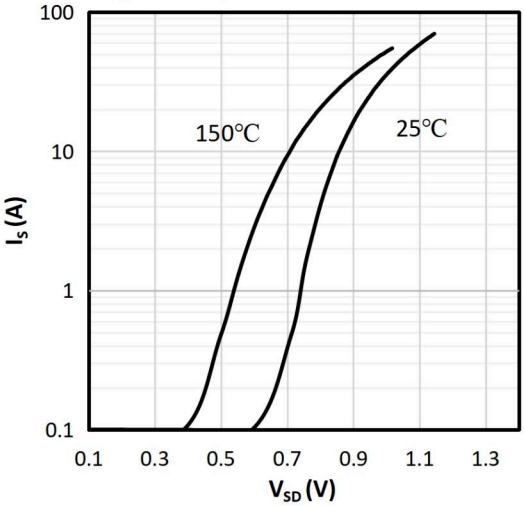


Fig 8: Capatitance Characteristics

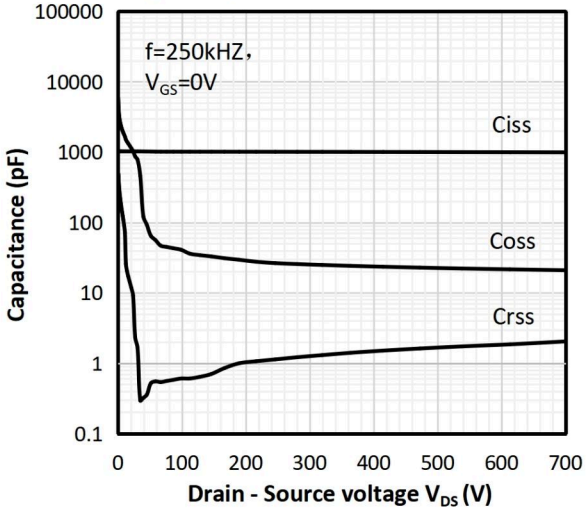


Fig 9: Gate charger Characteristics

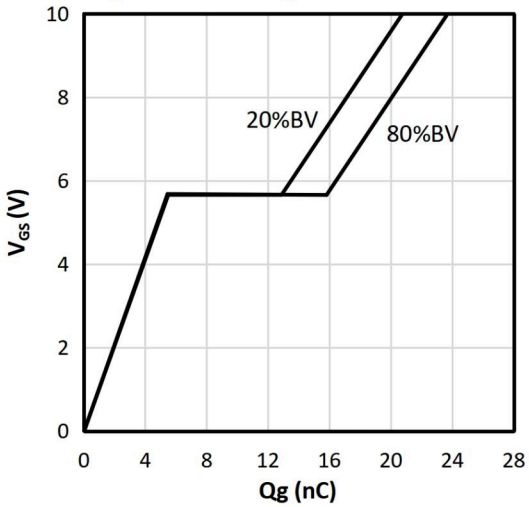


Fig 10: Drain Current Derating

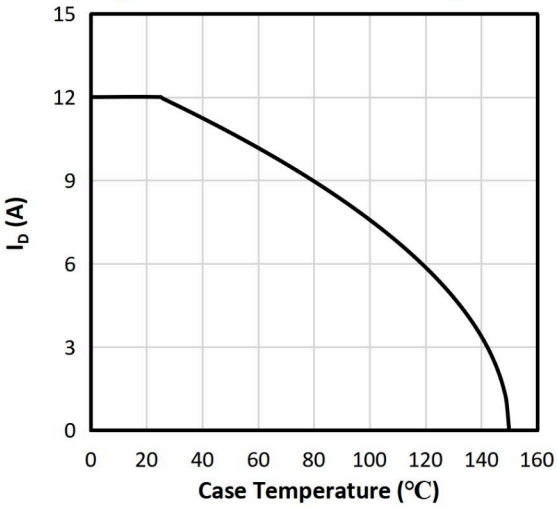


Fig 11: Power Dissipation vs.Temperature

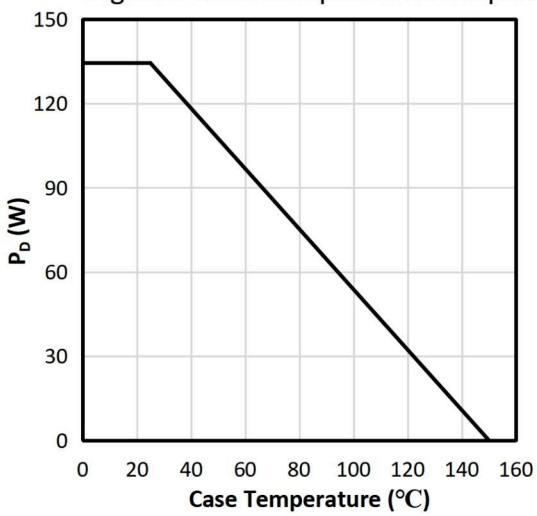
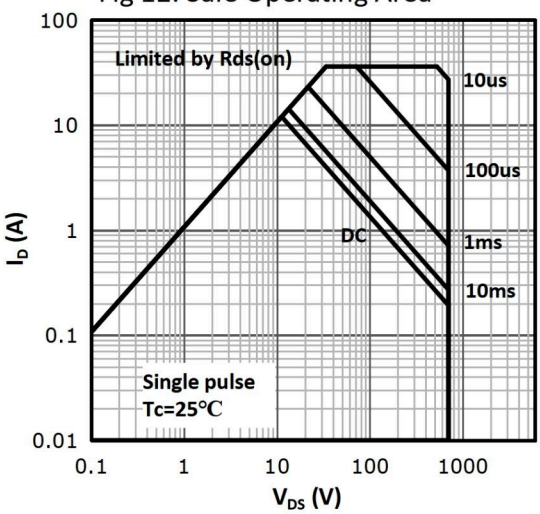
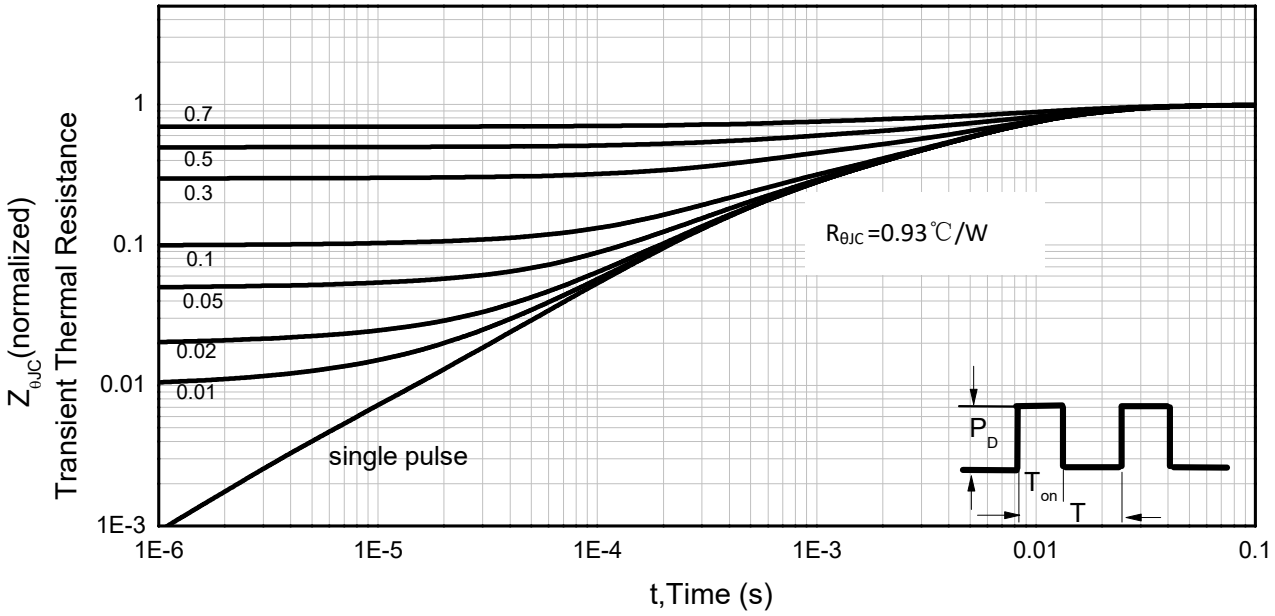


Fig 12: Safe Operating Area



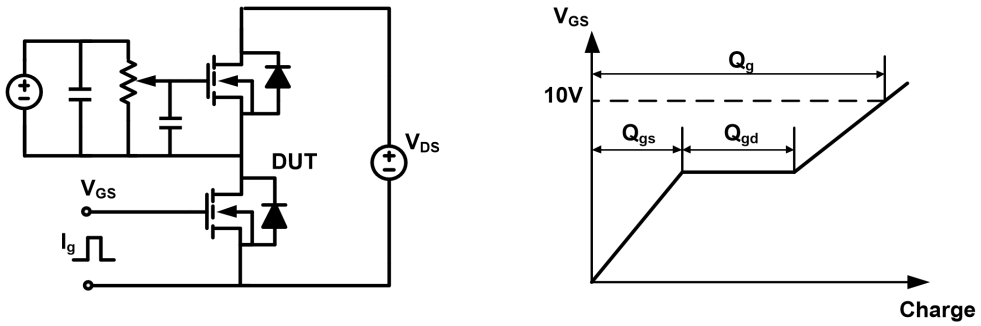
RATING AND CHARACTERISTIC CURVES

Fig 13: Normalized Maximum Transient Thermal Impedance (R_{thJC})

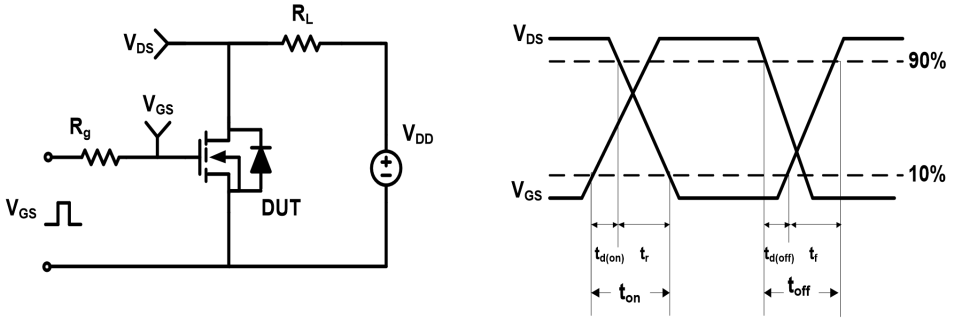


Test Circuit

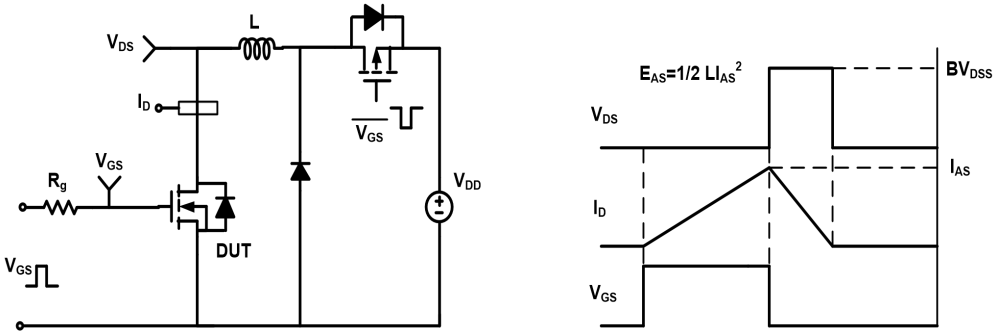
Gate Charge Test Circuit & Waveform



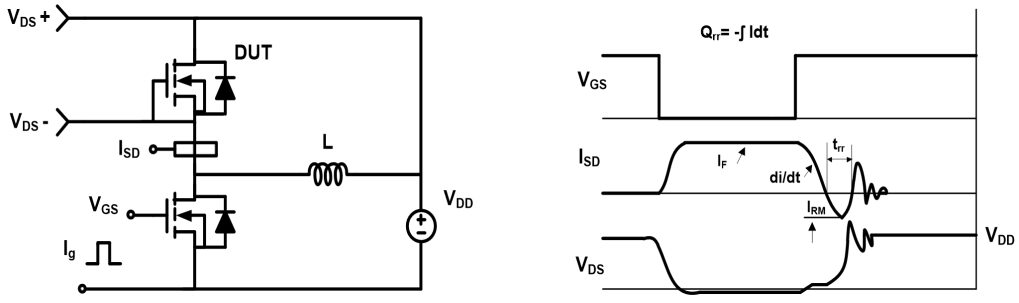
Resistive Switching Test Circuit & Waveform



Unclamped Inductive Switching (UIS) Test Circuit & Waveform



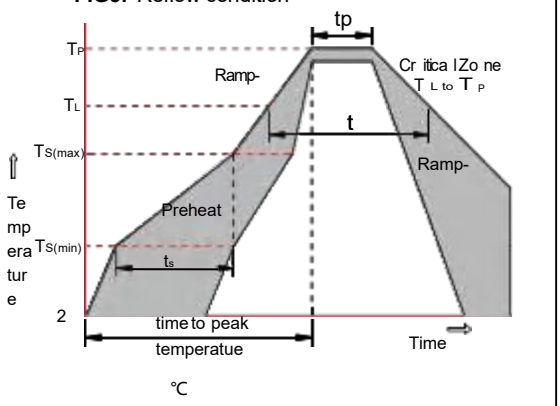
Diode Recovery Test Circuit & Waveform



Soldering parameters

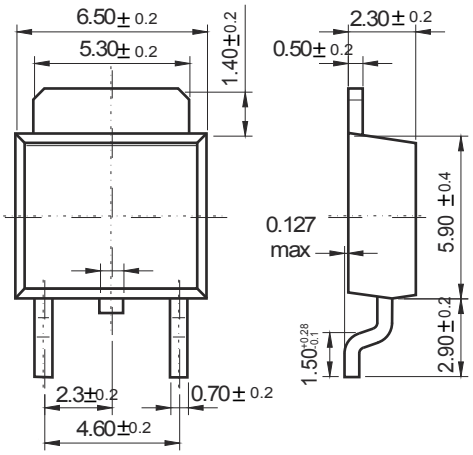
Reflow Condition		Pb-Free assembly (see as bellow)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150℃
	-Temperature Max($T_{s(max)}$)	+200℃
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3℃/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3℃/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217℃
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)℃
Time within 5℃ of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6℃/sec. Max
Time 25℃ to Peak Temp (T_P)		8 min. Max
Do not exceed		+260℃

FIG5: Reflow condition

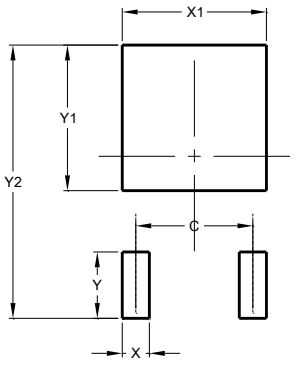


Package Dimensions & Suggested Pad Layout

TO-252



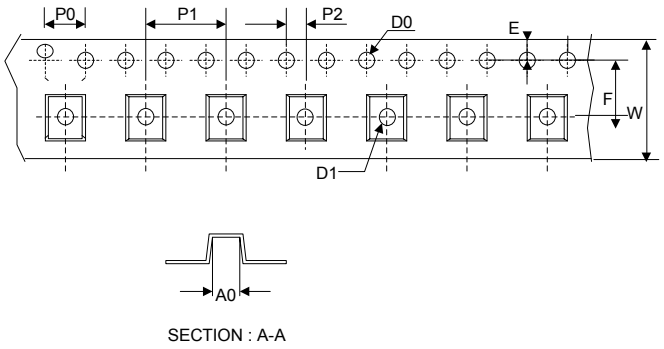
Dimensions in inches and (millimeters)



Dimensions	Value (in mm)
C	4.55
X	1.50
X1	5.80
Y	2.70
Y1	6.00
Y2	10.90

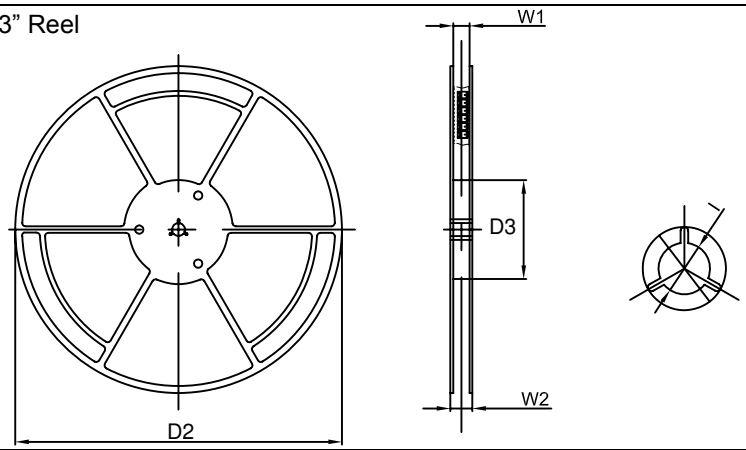
Tape & rell specification

Tape



Symbol	Dimension (mm)
P0	4.00±0.20
P1	8.00±0.20
P2	2.00±0.20
D0	1.55±0.15
D1	1.55±0.20
E	1.75±0.20
F	7.50±0.20
W	16.00±0.20
A0	7.10±0.20
B0	10.50±0.20
K0	2.70±0.20
T	0.30±0.10

13” Reel



D2	330.0±5.0
D3	100.0±4.0
W1	20.0±5.0
W2	25.0±5.0
I	13.0±2.0

Quantity: 2500PCS

ENTEGRECİ

Bu belge www.entegreci.com üzerinden sunulmaktadır.

Elektronik komponent tedarikinde Entegreci

Entegreci, Eskişehir merkezli, Türkiye geneline satış yapan bir elektronik komponent mağazasıdır. Entegreler (IC), mikrodenetleyiciler, transistörler, diyotlar, pasif elemanlar, konnektörler, modüller ve geliştirme kartları tek adetten seri üretim adetlerine kadar satılır. Ürün sayfalarında güncel stok durumunu, fiyatı ve datasheet bağlantısını bulabilirsiniz.

Parça koduyla arama

Üretici parça numarasını yazın; stok ve fiyatı hemen görün.

www.entegreci.com

Ürün kategorileri

Entegreden kapasitöre tüm elektronik komponent kategorileri.

Kategorilere göz atın

Üreticiler

Aradığınız üreticinin ürünlerini tek sayfada inceleyin.

Üreticileri görün

Toplu alım ve teklif

Listede olmayan ya da yüksek adetli parçalar için teklif isteyin.

Teklif isteyin

www.entegreci.com | **destek@entegreci.com** | **0850 305 90 34**

Entegreci is an online electronic components store based in Türkiye. Search by manufacturer part number to see stock, prices and datasheets for integrated circuits, microcontrollers, transistors, passive components and connectors, or request a quote for parts that are not listed.

Bu sayfa Entegreci tarafından eklenmiştir. Belgenin önceki sayfaları asıl yayıncısına aittir ve içeriği değiştirilmemiştir; en güncel sürüm için belgenin yayıncısına başvurun.