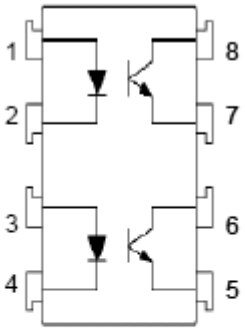
Feature:

- High Isolation voltage between input and output (Viso = 5000V rms)
- Current transfer ration
- (CTR: 50~600% at I_F = 5mA, V_{CE} = 5V)
- Operating Temperature up to +100 ºC
- Compact Small Outline Package
- Available packaged in Tube or Tape and reel
- Available with standard DIP-4, Wide lead bend, and SMD lead bend options.
- Conventional black housing package

Schematic:



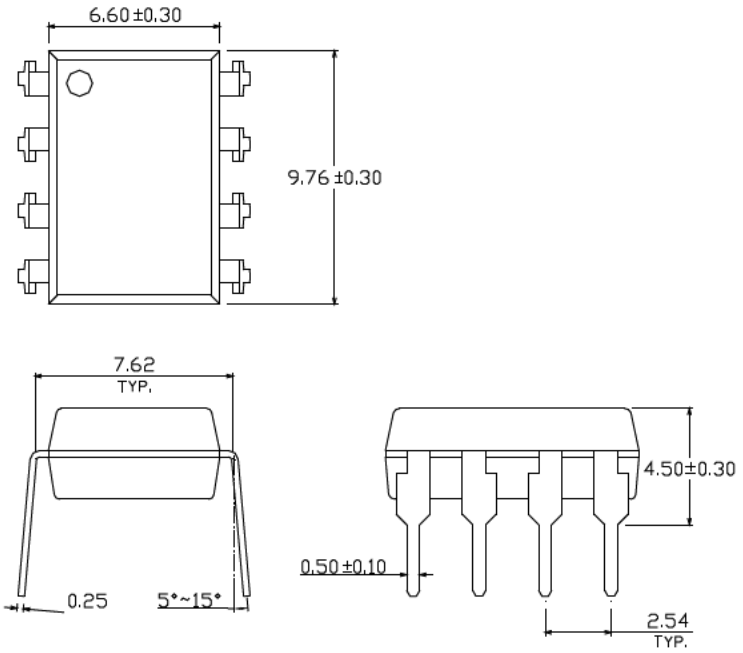
Pin Configuration
1, 3. Anode
2, 4. Cathode
5, 7. Emitter
6, 8. Collector

Certification & Compliance:

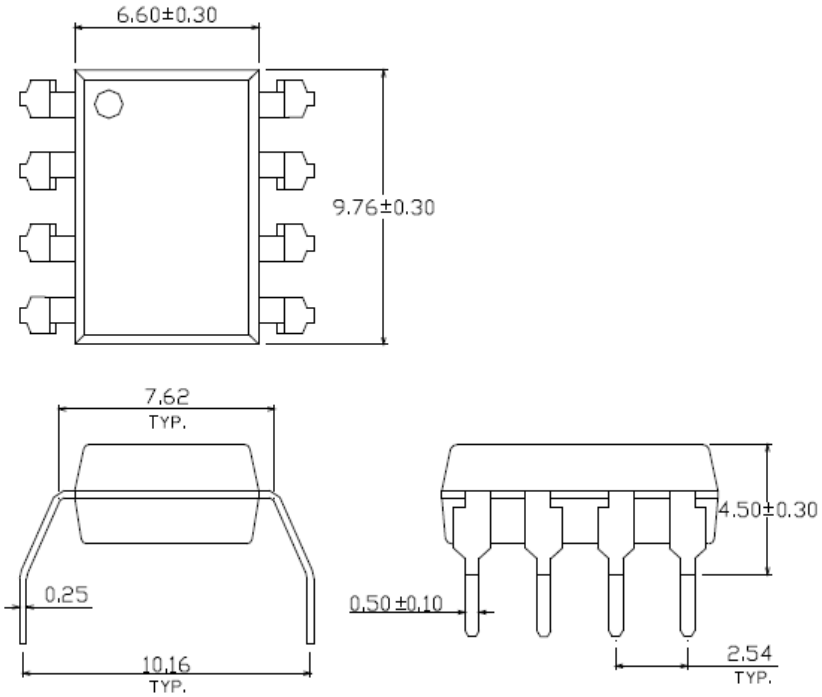
- Pb free and RoHS Compliant
- UL recognized (File # E338132)
- VDE recognized (File # 40030457)

Dimension: (Dot location indicates pin 1)

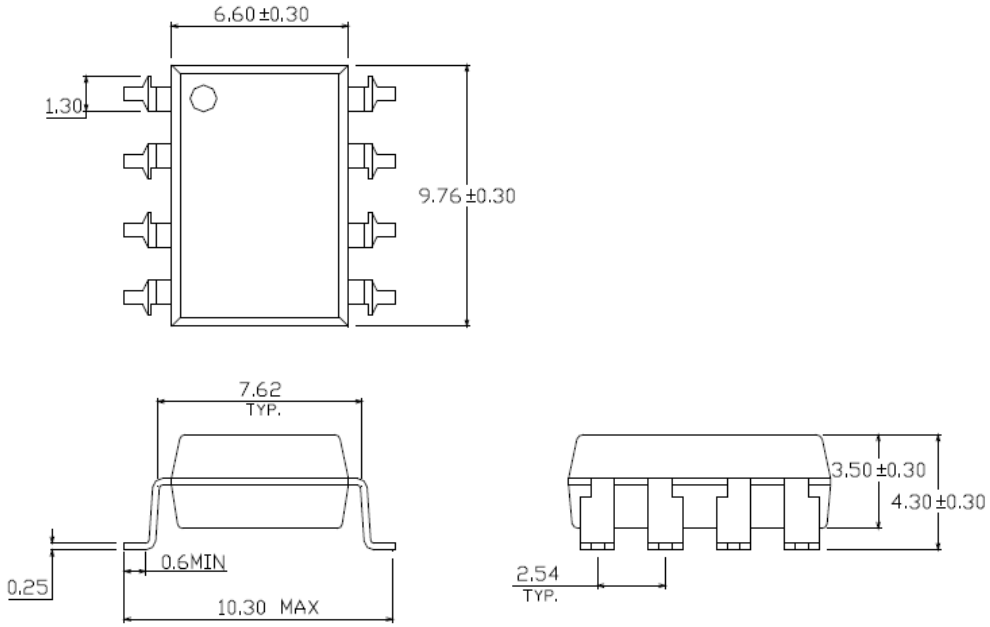
8-Pin Dip (standard):



Wide lead bend (Option W):



SMD lead bend (Option S):



All Dimensions are in mm
Tolerance = +/- 0.1mm

Absolute Maximum Rating

Symbol	Parameter	Rating	Units
		Q827	
T_{STG}	Storage Temperature	-55 ~ +150	ºC
T_{OPR}	Operating Temperature	-55 ~ +100	ºC
T_{SOL}	Lead Solder Temperature	260 for 10 sec	ºC
P_{TOT}	Total Power Dissipation	200	mW
EMITTER			
I_F	Continuous Forward Current	60	mA
V_R	Reverse Voltage	6	V
P_D	Power Dissipation	100	mW
	Power Dissipation Derated above 100ºC	N/A	mW/ ºC
DETECTOR			
V_{CEO}	Collector–Emitter Voltage	80	V
V_{ECO}	Emitter-Collector Voltage	7	V
I_C	Continuous Collector Current	50	mA
P_C	Collector Power Dissipation	150	mW
	Collector Power Dissipation Derated above 80 ºC	N/A	mW/ºC

Electrical Characteristic (T_A=25 °C)

Emitter

Symbol	Characteristic	Device	Test Condition	Range			Unit
				Min	Typ	Max	
V_F	Forward voltage	Q827	I_F = 20mA	-	1.2	1.4	V
I_R	Reverse current	Q827	V_R = 4V	-	-	10	μA
C_{in}	Input capacitance	Q827	V = 0, f = 1KHz	-	30	250	pF

Detector

Symbol	Characteristic	Device	Test Condition	Range			Unit
				Min	Typ	Max	
I_{CEO}	Collector-Emitter dark current	Q827	V_{CE} = 20V, I_F = 0mA	-	-	100	μA
BV_{CEO}	Collector-Emitter breakdown voltage	Q827	I_C = 0.1mA	80	-	-	V
BV_{ECO}	Emitter- collector breakdown voltage	Q827	I_E = 0.1mA	7	-	-	V

DC Transfer Characteristic

Symbol	Characteristic	Device	Test Condition	Range			Unit
				Min	Typ	Max	
CTR	Current Transfer Ratio	Q827	I_F = 5mA, V_{CE} = 5V	50	-	600	%
$V_{CE(Sat)}$	Collector-Emitter saturation voltage	Q827	I_F = 20mA, I_C = 1mA	-	0.1	0.2	V

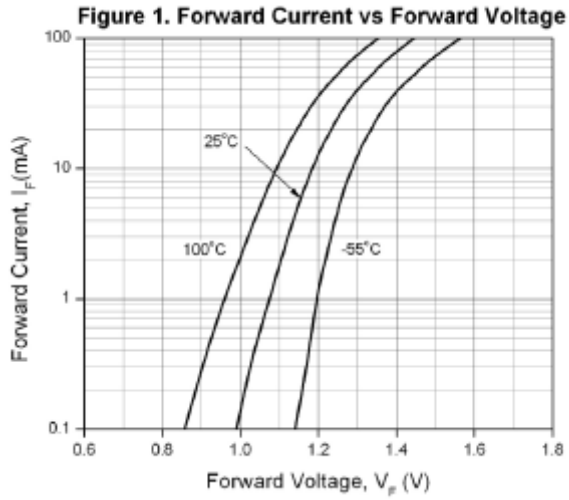
AC Characteristic

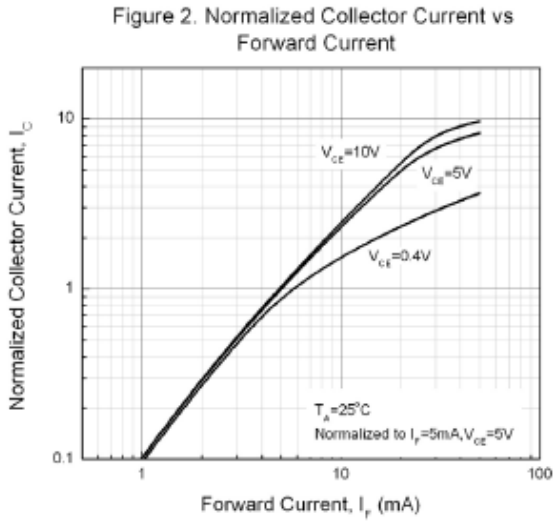
Symbol	Characteristic	Device	Test Condition	Range			Unit
				Min	Typ	Max	
f_c	Cut-off frequency	Q827	V_{ce} = 5V, I_C = 2mA R_L = 100Ω, -3dB	-	80	-	KHz
t_r	Rise time	Q827	V_{ce} = 2V, I_C = 2mA R_L = 100Ω,	-	3	18	μs
t_f	Fall time	Q827	V_{ce} = 2V, I_C = 2mA R_L = 100Ω,	-	4	18	μs

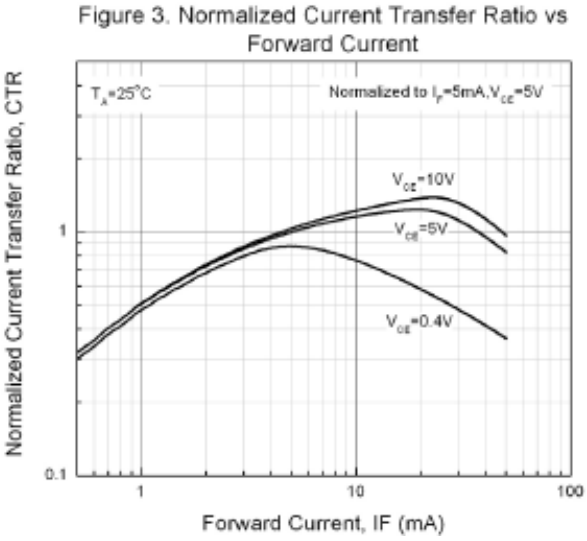
Isolation Characteristic

Symbol	Characteristic	Device	Test Condition	Range			Unit
				Min	Typ	Max	
R_{ISO}	Isolation Resistance	Q827	V_{IO} = 500Vdc, 40~60% R.H.	$5x10^{10}$	-	-	Ω
C_{ISO}	Isolation Capacitance	Q827	V_{IO} = 0, f = 1MHz	-	0.6	1.0	pF
V_{ISO}	Isolation Voltage	Q827	f = 60Hz, t = 1 min, I_{I-O} ≤ 2μA	5000	-	-	V rms

Characteristic Curves:







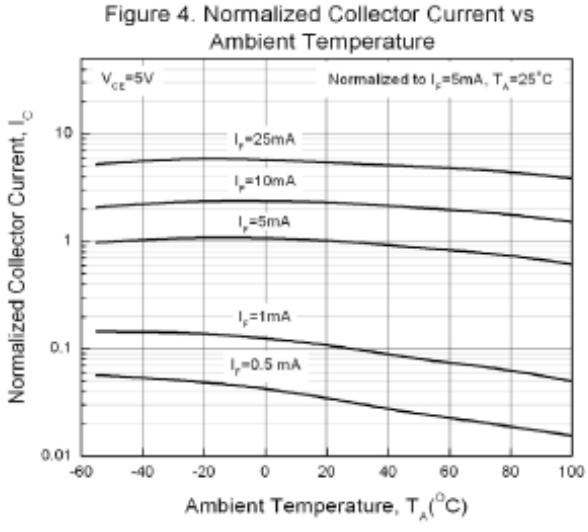


Figure 5. Collector Current vs Collector-Emitter Voltage

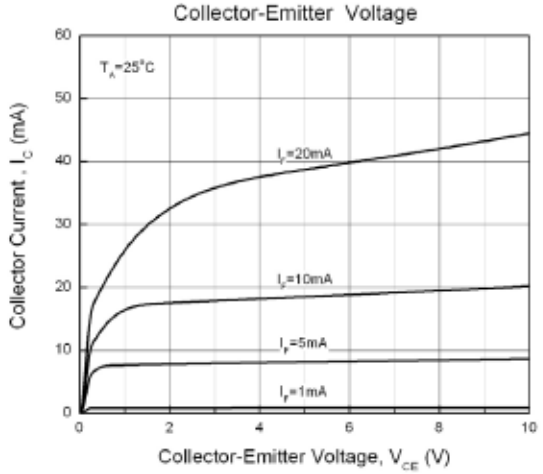


Figure 6. Collector Current vs Collector-Emitter Voltage

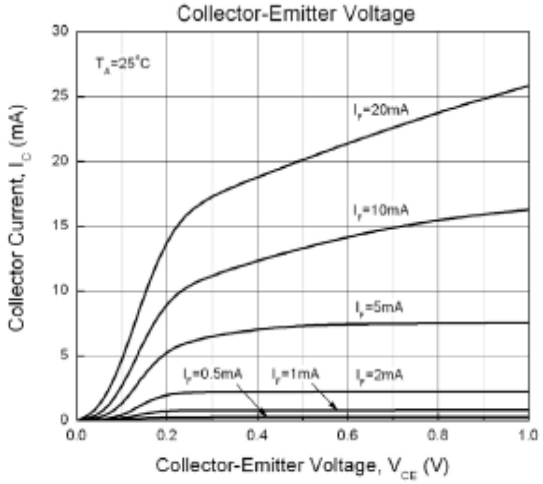


Figure 7. Collector Dark Current vs Ambient Temperature

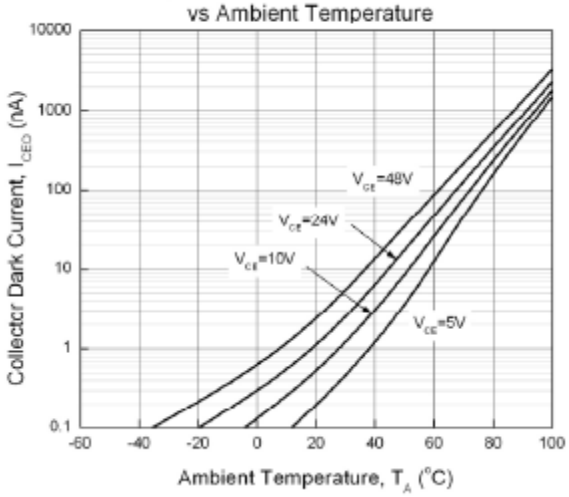


Figure 8. Switching Time vs Load Resistance

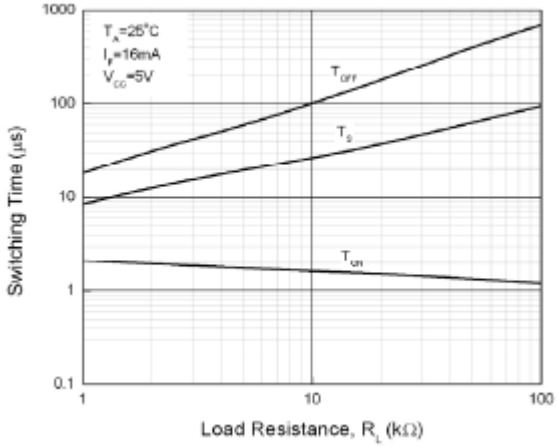
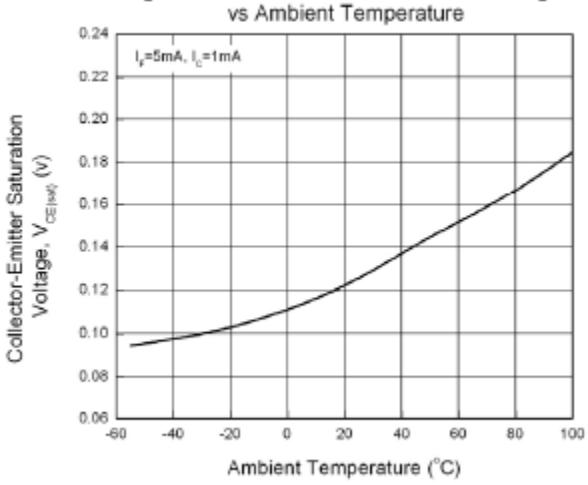
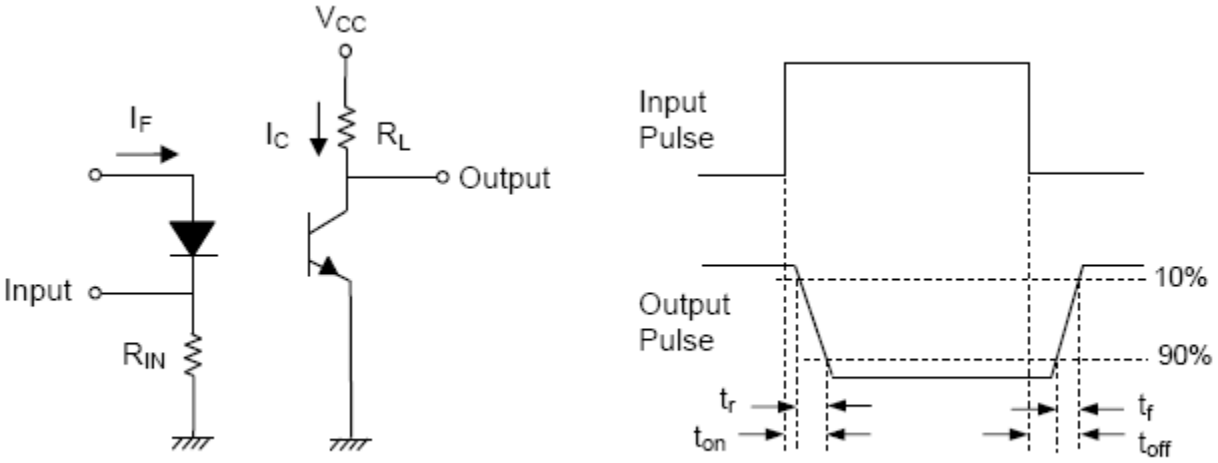


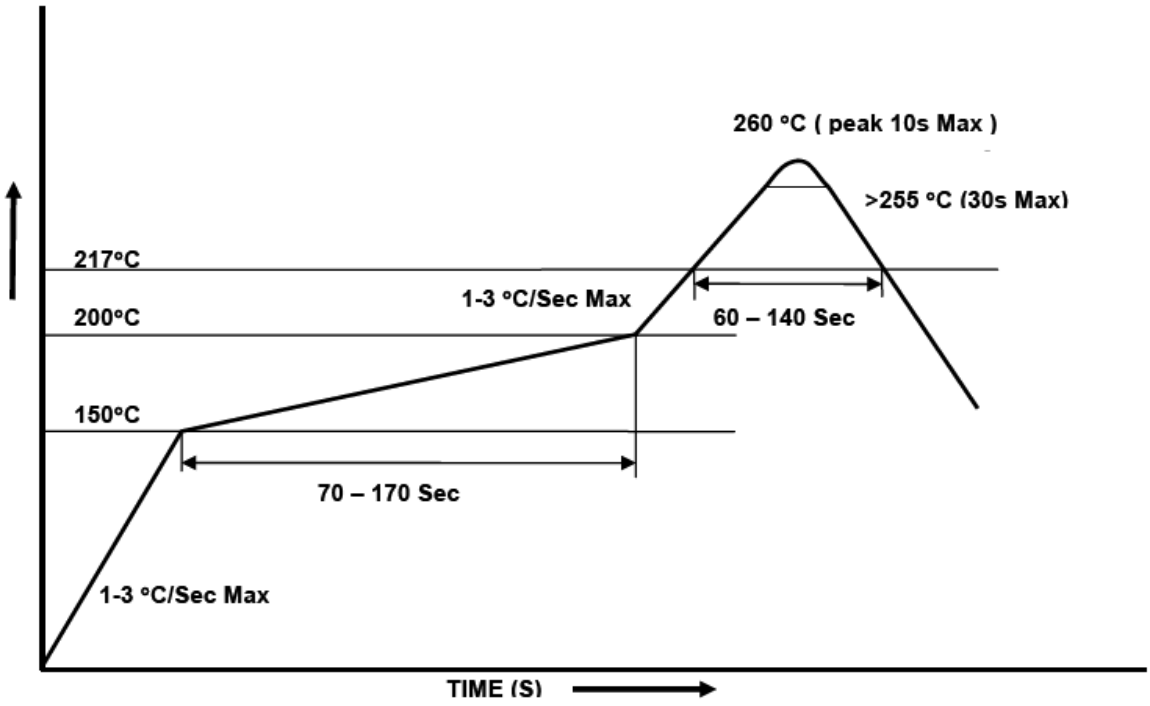
Figure 9. Collector-Emitter Saturation Voltage vs Ambient Temperature



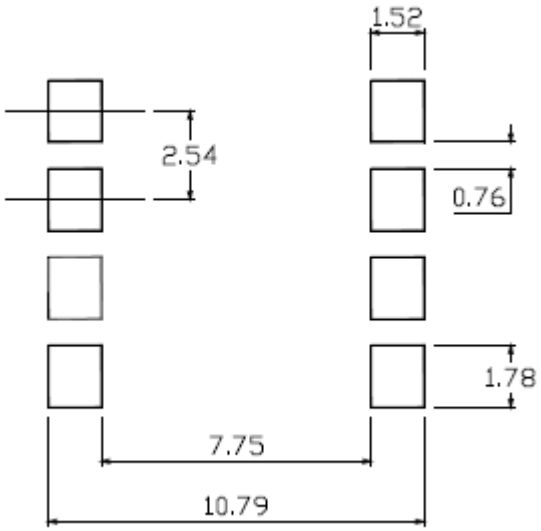
Test Circuit for Response Time



Solder Reflow Temperature Profile:



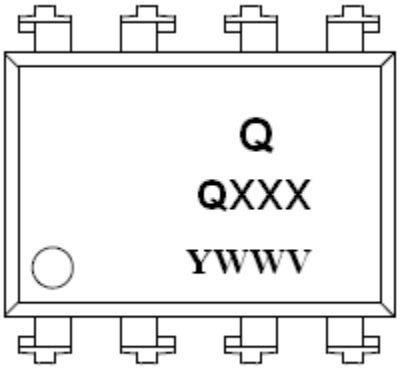
Solder Profile & Footprint:



Recommended Solder Footprint for SMD Leadform

Units: mm	tolerance: +/- 0.1mm

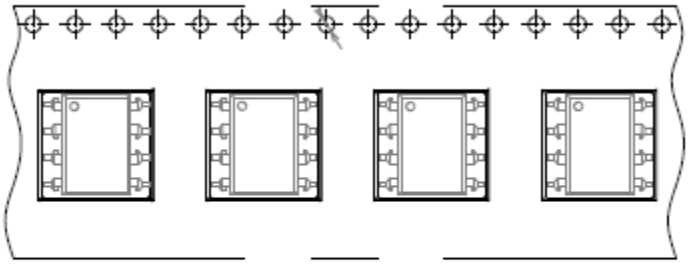
Device Marking:



Q = QT-Brightek Corporation
QXXX = Device Part Number
Y = Year
WW = Week
V = VDE Option

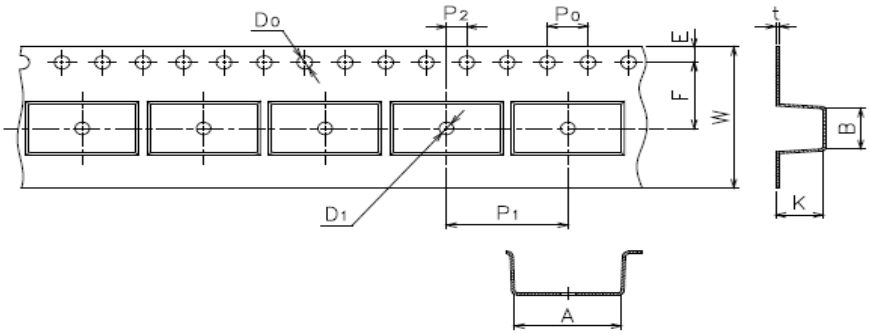
Tape and Reel Packing Specifications:

Option TA



Direction of feed from reel

Tape Dimensions:



Dimension No.	A	B	Do	D1	E	F
Dimension(mm)	10.4±0.1	10.0±0.1	1.5±0.1	1.5±0.1	1.75±0.1	7.5±0.1
Dimension No.	Po	P1	P2	t	W	K
Dimension(mm)	4.0±0.1	12.0±0.1	2.0±0.1	0.4±0.1	16.0+0.3/ -0.1	4.5±0.1

Ordering Information:

Part Number	Orderable Part Number	Options	Description	Quantity per packing
Q827	Q827	None	Standard 8 pin DIP	50pcs / Tube
	Q827V	None	With VDE marking	50pcs / Tube
	Q827W	W	Wide lead bend (0.4 inch spacing)	50pcs / Tube
	Q827WV	W	Wide lead bend (0.4 inch spacing) + VDE marking	50pcs / Tube
	Q827STA	S	SMD lead form with tape and reel option	900pcs / reel
	Q827STAV	S	SMD lead form with tape and reel option + VDE marking	900pcs / reel

Revision History:

Description:	Revision #	Revision Date
Initial release of Q827	1.0	4/22/2010
Feature, certification & compliance and ordering information updates	1.1	02/01/2011

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2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.