

NEC HIGH COLLECTOR TO EMITTER VOLTAGE DARLINGTON TRANSISTOR TYPE MULTI PHOTOCOUPLER SERIES

PS2532-1, -2, -4
PS2532L-1, -2, -4

FEATURES

- **HIGH ISOLATION VOLTAGE**
BV: 5 k Vr.m.s. MIN
- **HIGH COLLECTOR TO EMITTER VOLTAGE**
V_{CEO} = 300 V MIN
- **ULTRA HIGH CURRENT TRANSFER RATIO**
CTR: 1500% MIN
- **HIGH SPEED SWITCHING**
t_r, t_f = 100 μs TYP
- **ISOLATED CHANNELS PER EACH PACKAGE**
- **1, 2, OR 4 CHANNELS AVAILABLE**
- **DIP PACKAGE**

DESCRIPTION

PS2532-1, -2, -4 and PS2532L-1, -2, -4 are optically coupled isolators containing a GaAs light emitting diode and an NPN silicon Darlington-connected phototransistor. PS2532-1, -2 and -4 are in a plastic DIP (Dual In-line Package) and PS2532L-1, -2 and -4 are in a lead bending type (Gull-wing) for surface mount.

APPLICATIONS

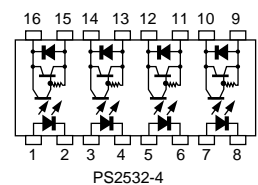
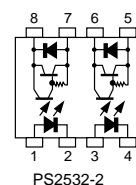
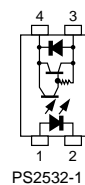
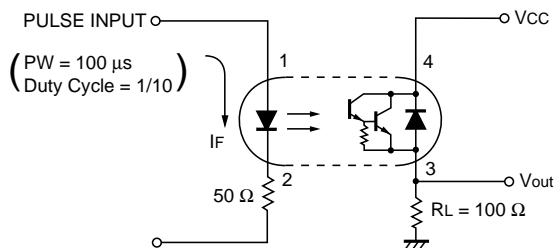
- DA
- POWER SUPPLY
- TELECOMMUNICATIONS

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

		PART NUMBER	PS2532-1, -2, -4, PS2532L-1, -2, -4			
	SYMBOLS	PARAMETERS	UNITS	MIN	TYP	MAX
Diode	V _F	Forward Voltage, I _F = 10 mA	V		1.15	1.4
	I _R	Reverse Current, V _R = 5 V	μA			5
	C	Junction Capacitance, V = 0, f = 1.0 MHz	pF		30	
Transistor	I _{CEO}	Collector to Emitter Dark Current, V _{CE} = 300 V, I _F = 0	nA			400
	BV _{CEO}	Collector to Emitter Breakdown Voltage, I _C = 1 mA, I _B = 0	V	300		
	BV _{EBO}	Emitter to Base Breakdown Voltage, I _E = 100 μA, I _C = 0	V	6		
Coupled	CTR	Current Transfer Ratio, I _F = 1 mA, V _{CE} = 2 V	%	1500	4000	6500
	V _{CE(sat)}	Collector Saturation Voltage, I _F = 1 mA, I _C = 2 mA	V			1.0
	R ₁₋₂	Isolation Resistance, V _{in-out} = 1 k Vdc	Ω	10 ¹¹		
	C ₁₋₂	Isolation Capacitance, V = 0, f = 1 MHz	pF		0.6	
	t _r	Rise Time ¹ , V _{CC} = 5 V, I _C = 10 mA	μs		100	
	t _f	Fall Time ¹ , V _{CC} = 5 V, I _C = 10 mA	μs		100	

Note:

1. Test Circuit for Switching Time



PS2532-1, -2, -4, PS2532L-1, -2, -4

ABSOLUTE MAXIMUM RATINGS¹ (T_A = 25°C)

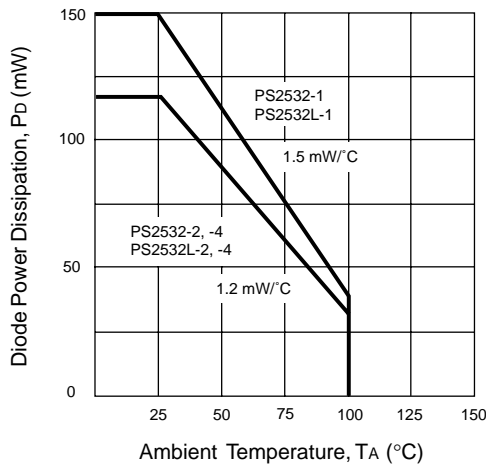
SYMBOLS	PARAMETERS	UNITS	RATINGS	
			PS2532 -1 PS2532L -1	PS2532 -2, -4 PS2532L -2, -4
Diode				
V _R	Reverse Voltage	V	6	6
I _F	Forward Current (DC)	mA	80	80
P _D	Power Dissipation	mW/Ch	150	120
I _F (PEAK)	Peak Forward Current (PW = 100 μs, Duty Cycle 1%)	A	1	1
Transistor				
V _{CEO}	Collector to Emitter Voltage	V	300	300
V _{ECO}	Emitter to Collector Voltage	V	6	6
I _C	Collector Current	mA	150	150
P _C	Power Dissipation	mW/Ch	300	300
Coupled				
BV	Isolation Voltage ²	V _{r.m.s.}	5000	5000
T _{STG}	Storage Temperature	°C	-55 to +150	-55 to +150
T _{OP}	Operating Temperature	°C	-55 to +100	-55 to +100
T _{SOL}	Lead Temperature (Soldering 10 s)	°C	260	260

Notes:

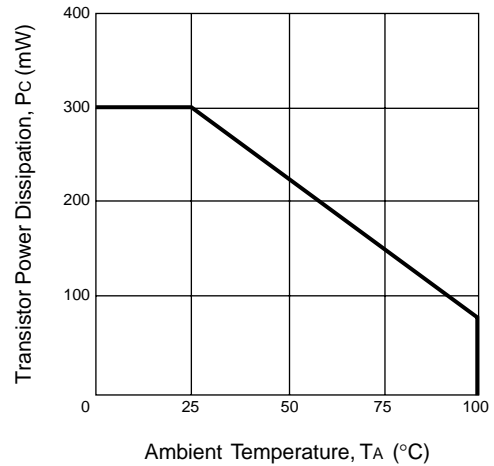
1. Operation in excess of any one of these parameters may result in permanent damage.
2. AC voltage for 1 minute at T_A = 25 °C, RH = 60 % between input and output.

TYPICAL PERFORMANCE CURVES (T_A = 25°)

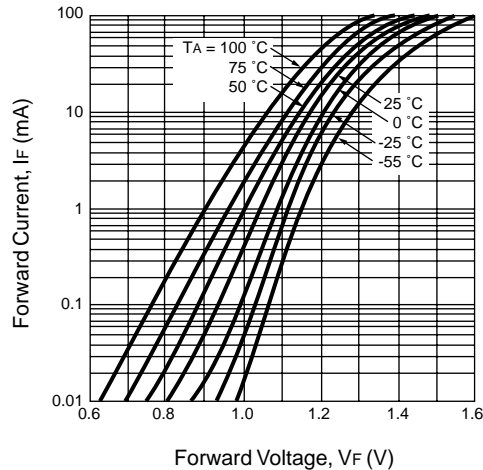
DIODE POWER DISSIPATION vs. AMBIENT TEMPERATURE



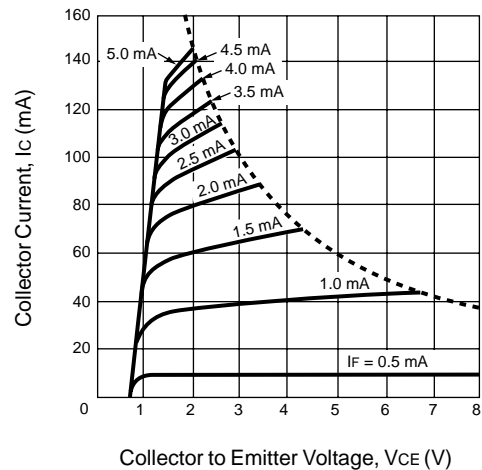
TRANSISTOR POWER DISSIPATION vs. AMBIENT TEMPERATURE



FORWARD CURRENT vs. FORWARD VOLTAGE

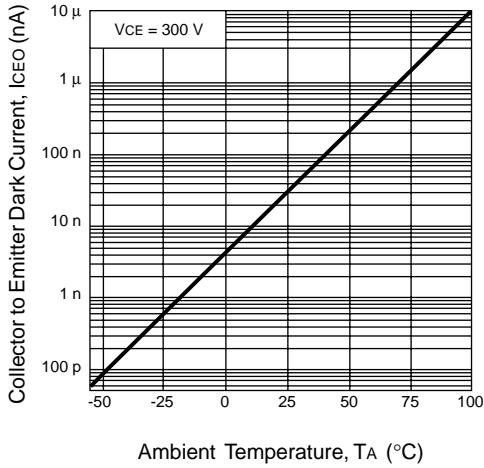


COLLECTOR CURRENT vs. COLLECTOR to EMITTER VOLTAGE

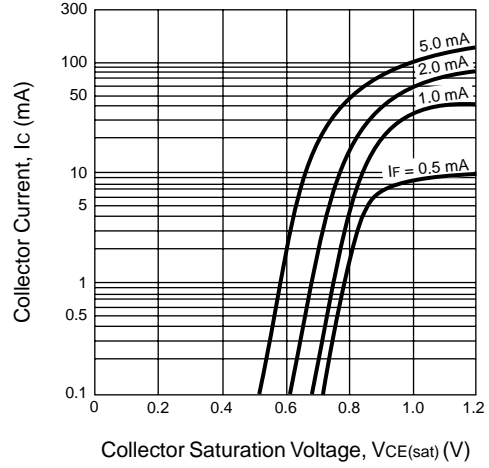


TYPICAL PERFORMANCE CURVES ($T_A = 25^\circ\text{C}$)

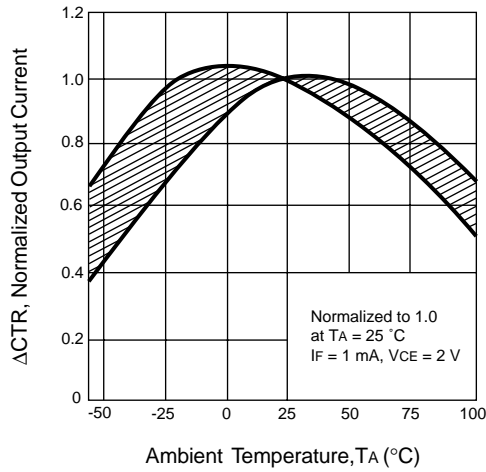
COLLECTOR TO EMITTER DARK CURRENT vs. AMBIENT TEMPERATURE



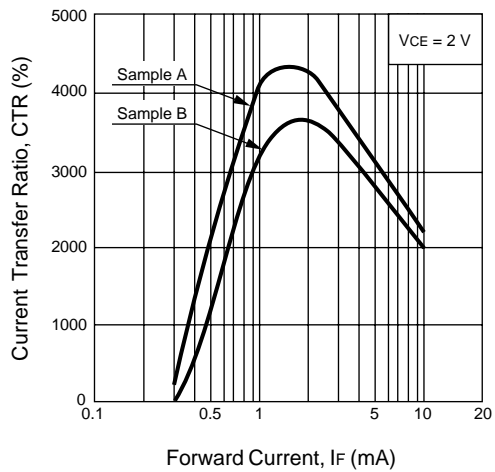
COLLECTOR CURRENT vs. COLLECTOR SATURATION VOLTAGE



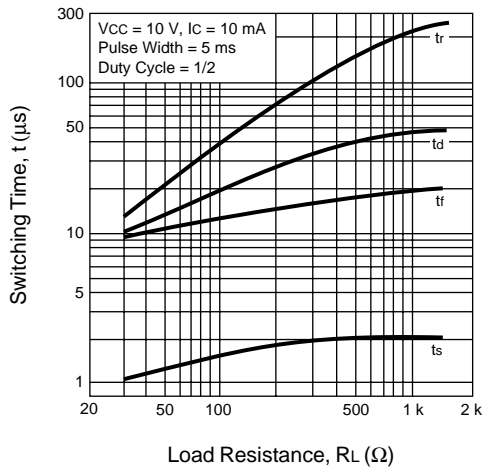
NORMALIZED OUTPUT CURRENT vs. AMBIENT TEMPERATURE



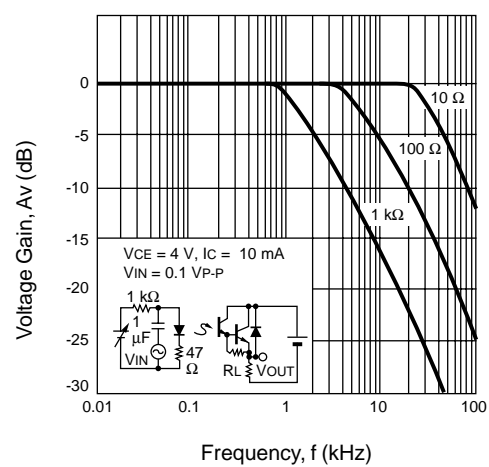
CURRENT TRANSFER RATIO (CTR) vs. FORWARD CURRENT



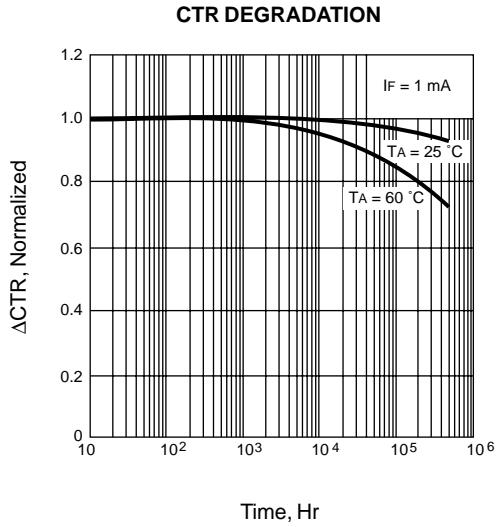
SWITCHING TIME vs. LOAD RESISTANCE



FREQUENCY RESPONSE

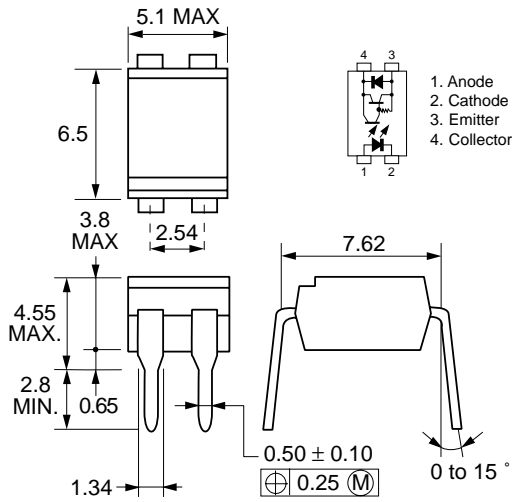


TYPICAL PERFORMANCE CURVES (TA = 25°)

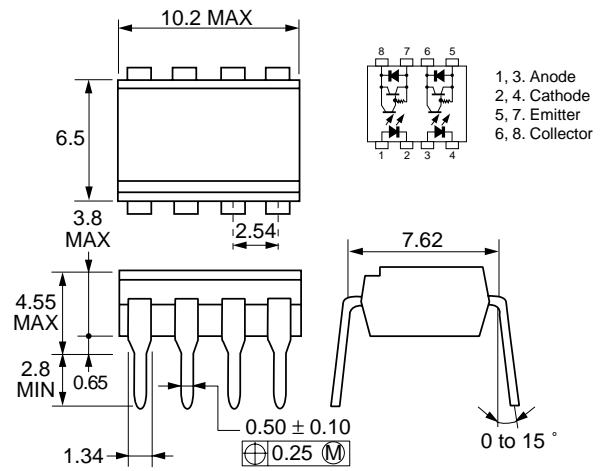


OUTLINE DIMENSIONS (Units in mm) DIP (Dual In-Line Package)

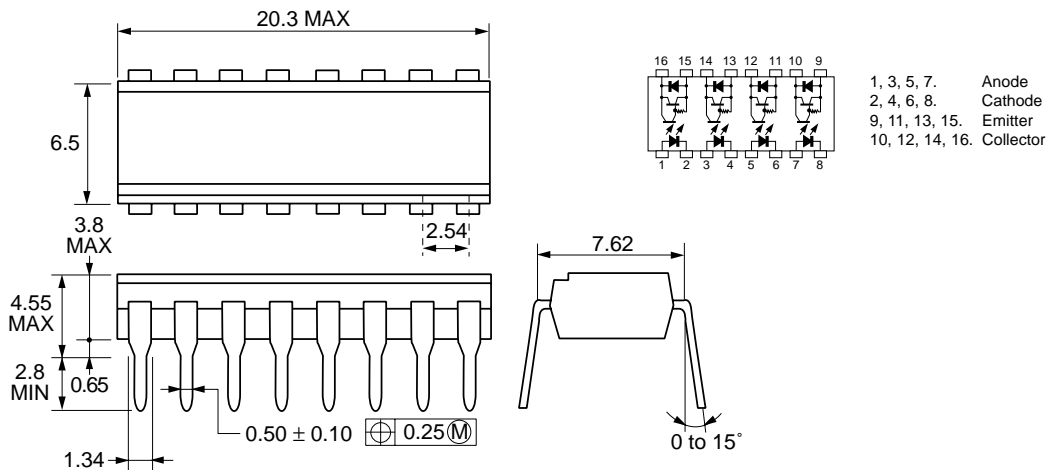
PS2532-1



PS2532-2

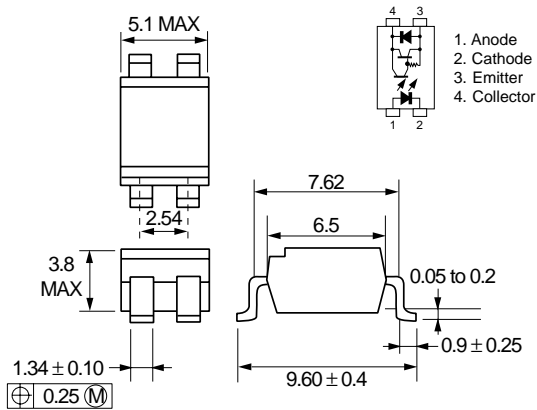


PS2532-4

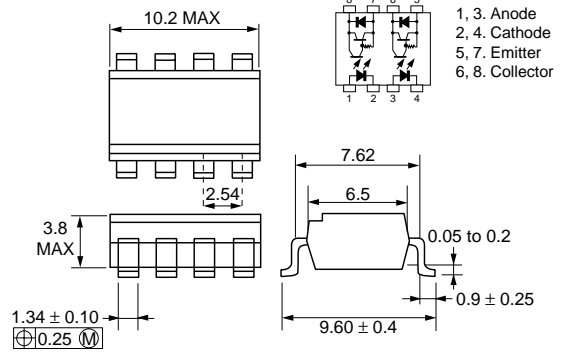


OUTLINE DIMENSIONS (Units in mm) Lead Bending type (Gull-Wing)

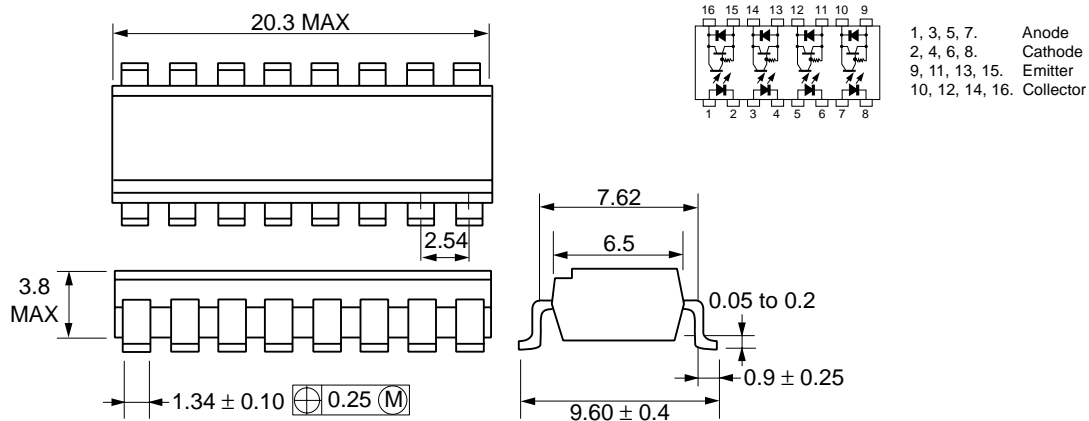
PS2532L-1



PS2532L-2



PS2532L-4



Life Support Applications

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CEL CALIFORNIA EASTERN LABORATORIES • Headquarters • 4590 Patrick Henry Drive • Santa Clara, CA 95054-1817 • (408) 988-3500 • Telex 34-6393 • FAX (408) 988-0279
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