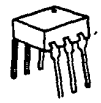
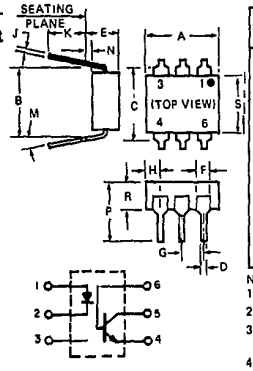
Photon Coupled Isolator MCT2, MCT2E, MCT26



GaAs Infrared Emitting Diode & NPN Silicon Photo-Transistor

The GE Solid State MCT2, MCT2E and MCT26 are gallium arsenide, infrared emitting diodes coupled with a silicon phototransistor in a dual-in-line package. These devices are also available in Surface-Mount packaging.

Covered under U.L. component recognition program, reference file E51868



SYMBOL	MILLIMETERS MIN.	MILLIMETERS MAX.	INCHES MIN.	INCHES MAX.	NOTES
A	8.38	8.89	.330	.350	
B	7.62 REF		.300 REF.		1
C	--	8.64	--	.340	2
D	.406	.508	.016	.020	
E	--	5.08	--	.200	3
F	1.01	1.78	.040	.070	
G	2.28	2.80	.090	.110	
H	--	2.16	--	.085	4
J	.203	.305	.008	.012	
K	2.54	--	.100	--	
M	--	15	--	15	
N	.381	--	.015	--	
P	--	9.53	--	.375	
R	2.62	3.43	.115	.135	
S	6.10	6.86	.240	.270	

NOTES
1. INSTALLED POSITION LEAD CENTERS
2. OVERALL INSTALLED DIMENSION.
3. THESE MEASUREMENTS ARE MADE FROM THE SEATING PLANE.
4. FOUR PLACES.

absolute maximum ratings: (25°C)

INFRARED EMITTING DIODE		
Power Dissipation	*200	milliwatts
Forward Current (Continuous)	60	milliamps
Forward Current (Peak) (Pulse width 1μsec 300 P Ps)	3	ampere
Reverse Voltage	3	volts

*Derate 2.6mW/°C above 25°C ambient.

PHOTO-TRANSISTOR		
Power Dissipation	**200	milliwatts
V_{CEO}	30	volts
V_{CBO}	70	volts
V_{ECO}	7	volts
Collector Current (Continuous)	100	milliamps

**Derate 2.6mW/°C above 25°C ambient.

TOTAL DEVICE
Storage Temperature -55 to 150°C
Operating Temperature -55 to 100°C
Lead Soldering Time (at 260°C) 10 seconds
Surge Isolation Voltage (Input to Output).
$3500V_{(peak)}$ $2500V_{(RMS)}$

individual electrical characteristics (25°C)

INFRARED EMITTING DIODE	TYP.	MAX.	UNITS
Forward Voltage (I_F = 10mA)	1.1	1.5	volts
Reverse Current (V_R = 3V)	–	10	microamps
Capacitance (V = 0, f = 1MHz)	50	–	picofarads

PHOTO-TRANSISTOR	MIN.	TYP.	MAX.	UNITS
Breakdown Voltage – $V_{(BR)CEO}$ (I_C = 10mA, I_F = 0)	30	–	–	volts
Breakdown Voltage – $V_{(BR)CBO}$ (I_C = 100μA, I_F = 0)	70	–	–	volts
Breakdown Voltage – $V_{(BR)ECO}$ (I_E = 100μA, I_F = 0)	7	–	–	volts
Collector Dark Current – I_{CEO} (V_{CE} = 10V, I_F = 0)	–	5	50	nanoamps
Capacitance (V_{CE} = 10V, f = 1MHz)	–	2	–	picofarads

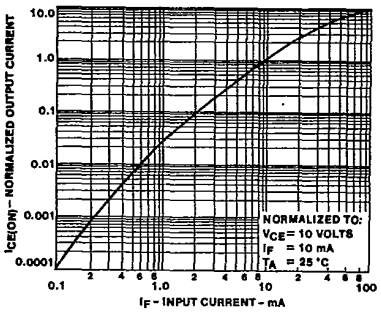
coupled electrical characteristics (25°C)

		MIN.	TYP.	MAX.	UNITS
DC Current Transfer Ratio (I_f = 10mA, V_{CE} = 10V)	MCT2 – MCT2E	20	–	–	%
	MCT26	6	–	–	%
Saturation Voltage – Collector to Emitter (I_F = 16mA, I_C = 2.0mA)	MCT2 – MCT2E	–	0.1	0.4	volts
Saturation Voltage – Collector to Emitter (I_F = 60mA, I_C = 1.6mA)	MCT26	–	–	0.5	volts
Isolation Resistance (Input to Output Voltage = $500V_{DC}$)		100	–	–	gigaohms
Input to Output Capacitance (Input to Output Voltage = 0, f = 1MHz)		–	–	2	picofarads
Switching Speeds: Rise/Fall Time (V_{CE} = 10V, I_{CE} = 2mA, R_L = 100Ω)		–	5	–	microseconds
Rise/Fall Time (V_{CB} = 10V, I_{CB} = 50μA, R_L = 100Ω)		–	3	–	microseconds

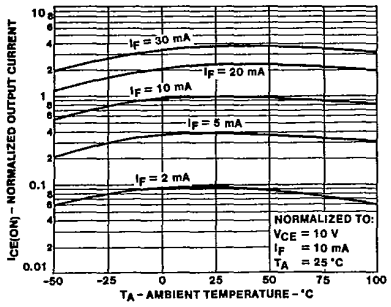
VDE Approved to 0883/6.80 01106 Certificate #35025, except type MCT2E.

T-41-83

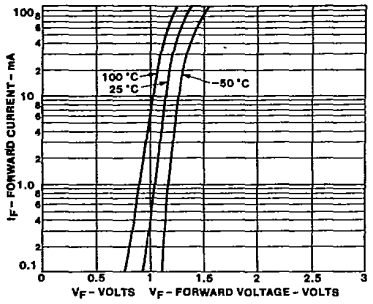
TYPICAL CHARACTERISTICS



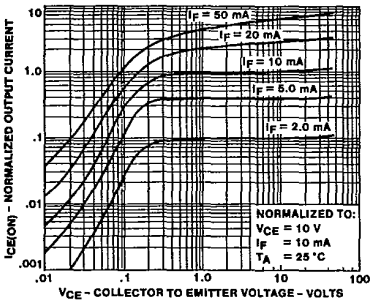
OUTPUT CURRENT VS INPUT CURRENT



OUTPUT CURRENT VS TEMPERATURE



INPUT CHARACTERISTICS



OUTPUT CHARACTERISTICS

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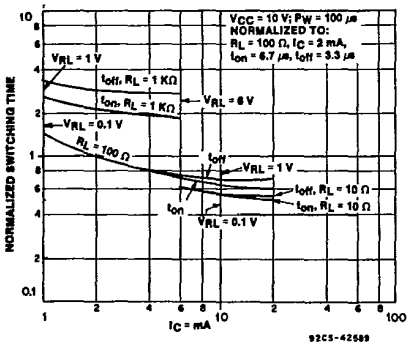
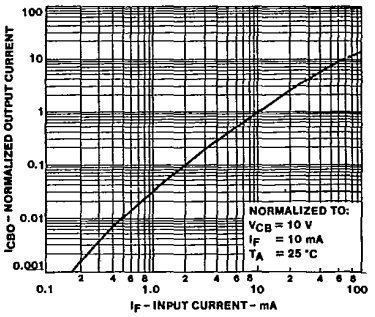


SWITCHING SPEED VS. COLLECTOR CURRENT (NOT SATURATED)



OUTPUT CURRENT (I_{CBO}) VS INPUT CURRENT