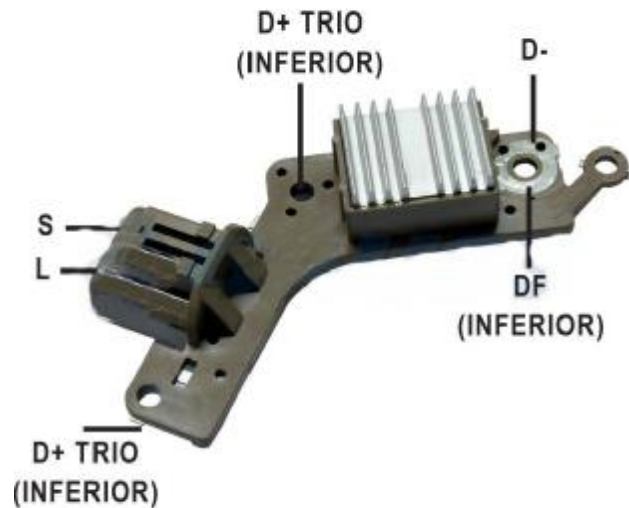


Multifunctional regulator E16C-28V – Replaces Mitsubishi

$V_{reg}=28,3$
 $Temp_{coef.}=0^{\circ}C$
 $Temp_{housing} - max. 130^{\circ}C$
 Soft start delay
 IRC
 Sense
 W digital



E16C-28V Replaces Mitsubishi

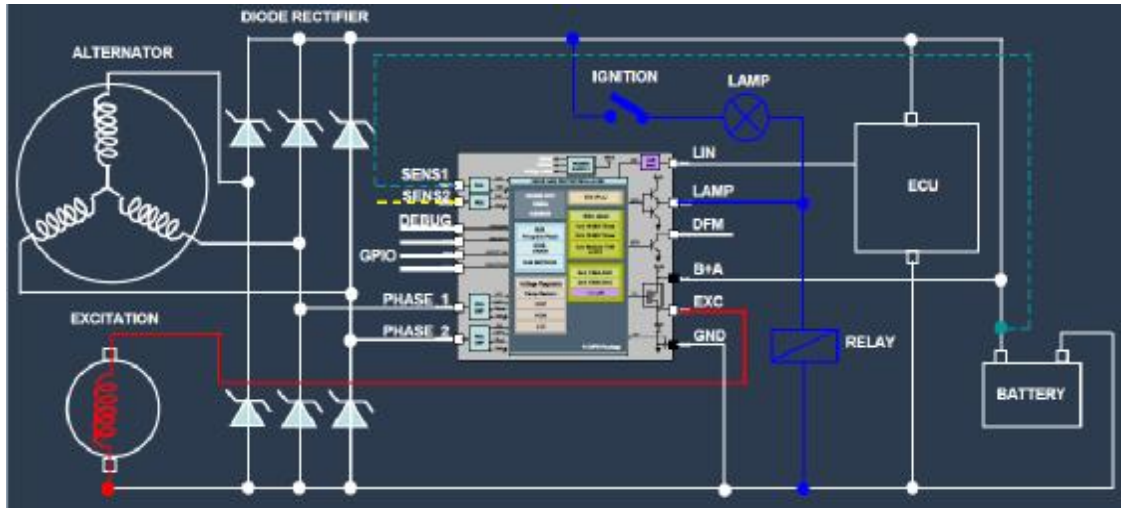
Original code number:	A 866 X 26070; A 866 X 26072; ME701302, 593384 12V/120A
Application:	Mitsubishi
Alternator:	MITSUBISHI: A004T40286; A004T40289; A004T40386; A004T40389; A004T70086; A004T70099; A004T70189; A004T95099; A004TU3088; A004TU3186; A4T40286; A4T40289; A4T40386; A4T40389; A4T70078; A4T70086; A4T70099; A4T70186; A4T70189; A4TU3085; A4TU3088; A4TU3186; A4TU3586; A9TU3099; A9TU3199; ME011886; ME011886; ME017632; ME077788; ME077789; ME077790; ME077869; ME092899; ME093245; ME093246; ME093256; ME151217; ME151974; ME160917; ME160918; ME163230.

Description:

The E16C-28V is an integrated circuit designed to regulate the voltage supplied by a car alternator. This voltage is used to power the various loads in the car as well as to charge the battery. This new high performances regulator is intended to be used on modern automotive alternators equipped with an avalanche rectifier bridge, internal fans and sometimes a rectified neutral. It does not require any external support components.

The E16C-28V alternator regulator has many advanced features, including fault detection, push-pull lamp driver, progressive load response (LRC), programmable TC, DF output, programmable cut-in phase frequency and self-start (even with only a single PHASE input). All features are selected by fuses at wafer probe.

Application circuit



Electrical specifications

Rating	Symbol	MIN value	Typ value	MAX value	Unit
B+A supply pin:					
DC Voltage	$V_{B+Acont}$			54	V
Transient voltage (Load Dump)	$V_{B+Atrans}$			54	V
Reverse ¹	V_{B+Arev}	-2,5			V
LAMP pin	$V_{MAX(LAMP)}$	-2		V_{B+A}^{+1}	V
DF pin	$V_{MAX(DF)}$	-2		54	V
Phase pins	$V_{MAX(phase)}$	-40		54	V
EXC pin ¹	$V_{MAX(EXC)}$	-2,5		V_{B+A}^{+1}	V

1. Dependant upon bond wire diameter and package

Thermal data

Rating	Symbol	MIN value	MAX value	Unit
Storage temperature	T_{stor}	-45	175	°C
Junction temperature	T_{op}	-40	160	°C
Parametric operating temperature	T_{pop}	-40	140	°C

Multifunctional regulator E16C-28V – Replaces Mitsubishi

Electrical specifications

Rating	Symbol	MIN value	Typ value	MAX value	Unit
Operating normal V_{B+A}	V_{norm}	7		33	V
Quiescent current ¹	I_{SB}	800	900	1000 ²	μA
Operating current ³	I_{OP}		12,0		mA
Range of regulation voltage (50% DC) ⁴	V_{reg}	27		29	V
ΔV_{reg} ⁵	ΔV_{reg}	-300		+300	mV
$\Delta V_{reg,load}$ ⁶	ΔV_{regL}	-350		0	mV
$\Delta V_{reg,speed}$ ⁷	ΔV_{regS}	-300		+300	mV
LAMP power-up threshold voltage	V_{LAMP}	0,5		1,0	V
LAMP power-up threshold current	I_{LAMP}	0,1		0,5	mA
LAMP V_{on} @2mA ⁸	V_{ONL1}	0,9		1,7	V
LAMP V_{on} @300mA ⁸	V_{ONL2}	0,9		1,8	V
LAMP V_{on} @1A ⁸	V_{ONL3}	0,9		2,5	V
TRIO V_{ON} @1A ⁸	V_{ONT}	0		0,5	V
EXC diode $V_{forward}$ @3A ⁸	$V_{F(diode)}$	0,6		1,4	V
EXC diode leakage ⁸	$V_{leak(diode)}$	-1 ⁹		10	μA
DF V_{on} (B+A=28V, R=300 Ω) ⁸	V_{ONDF1}		1,0		V
DF V_{on} (B+A=28V, R=300 Ω) ¹⁰	V_{ONDF1T}			2	V
DF V_{on} (B+A=28V, R=1700 Ω) ⁸	V_{ONDF2}		0,3		V
FIELD R_{DSon} ⁸	R_{DSOnF}			150	m Ω
FIELD Tmos leakage	$V_{leak(FIELD)}$	-10 ⁹		100	μA
Over-current LAMP protection threshold	I_{LAMPCC}	0,8	1,4	2,2	A
Over-current TRIO protection threshold	I_{TRIOCC}	2		4	A
Over-current FIELD protection threshold	$I_{FIELDCC}$	15		20	A
Over-current DF protection threshold	I_{DFCC}		500		mA
Phase terminal (DC) 0÷20000rpm				25	mA
S-Sense (V)		16	28	33	V

1. Phase 1 and Phase 2 @0V
2. At 25°C
3. 17%DC, no EXC or LAMP loads
4. See Table 1 for actual available values
5. Alternator speed 6000rpm, alternator output current = 10A
6. Alternator speed 6000rpm, Field duty cycle from 5% to 90%
7. Alternator speed from 18000rpm to 1500rpm, alternator output current = 5A
8. At 25°C
9. The small negative limit is to allow for test equipment variation
10. At 140°C

Temperature data

Rating	Symbol	MIN value	Typ value	MAX value	Unit
Over-temperature Field Shutdown threshold	T_{EXC}	160	180	190	°C
Over-temperature lamp Shutdown threshold	T_{LAMP}	160	175	190	°C
Over-temperature lamp Shutdown hysteresis	δT_{LAMP}		10		°C
Regulation voltage primary TC	TC_{reg}				mV/°C