

CMST6427E

**ENHANCED SPECIFICATION  
SURFACE MOUNT  
NPN SILICON  
DARLINGTON TRANSISTOR**



www.centrasemi.com

**SUPERmini™**



**SOT-323 CASE**

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CMST6427E is an Enhanced Specification, SUPERmini™, NPN Silicon Darlington Transistor. High DC Current gains, coupled with a Low Saturation Voltage, make this an excellent choice for industrial/consumer applications where operational efficiency and small size are top priority.

**MARKING CODE: C46**

**FEATURES:**

- High current (500mA max)
- High DC current gain (15k min)
- Low saturation voltage ( $V_{CE(SAT)}=0.8V$  max)
- High input impedance
- SUPERmini™ SOT-323 surface mount package

**APPLICATIONS:**

- Motor drivers
- Relay drivers
- Pre-amplifier input applications
- Voltage regulator controls

**MAXIMUM RATINGS:** ( $T_A=25^\circ C$ )

◆ <b>Collector-Base Voltage</b>
◆ <b>Collector-Emitter Voltage</b>
Collector-Emitter Voltage
Emitter-Base Voltage
Continuous Collector Current
Power Dissipation
Operating and Storage Junction Temperature
Thermal Resistance

SYMBOL		UNITS
<b><math>V_{CBO}</math></b>	<b>60</b>	<b>V</b>
<b><math>V_{CES}</math></b>	<b>60</b>	<b>V</b>
$V_{CEO}$	40	V
$V_{EBO}$	12	V
$I_C$	500	mA
$P_D$	275	mW
$T_J, T_{stg}$	-65 to +150	°C
$\theta_{JA}$	455	°C/W

**ELECTRICAL CHARACTERISTICS:** ( $T_A=25^\circ C$  unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
$I_{CBO}$	$V_{CB}=30V$		100	nA
◆ <b><math>I_{CEO}</math></b>	<b><math>V_{CE}=25V</math></b>		<b>100</b>	<b>nA</b>
$I_{EBO}$	$V_{BE}=10V$		100	nA
◆ <b><math>BV_{CBO}</math></b>	<b><math>I_C=100\mu A</math></b>	<b>60</b>		<b>V</b>
◆ <b><math>BV_{CES}</math></b>	<b><math>I_C=100\mu A</math></b>	<b>60</b>		<b>V</b>
$BV_{CEO}$	$I_C=10mA$	40		V
◆ <b><math>BV_{EBO}</math></b>	<b><math>I_E=10\mu A</math></b>	<b>14</b>		<b>V</b>
◆ <b><math>V_{CE(SAT)}</math></b>	<b><math>I_C=50mA, I_B=0.5mA</math></b>		<b>0.80</b>	<b>V</b>
$V_{CE(SAT)}$	$I_C=100mA, I_B=0.1mA$		0.85	V
◆ <b><math>V_{CE(SAT)}</math></b>	<b><math>I_C=500mA, I_B=0.5mA</math></b>		<b>1.0</b>	<b>V</b>

◆ Enhanced specification

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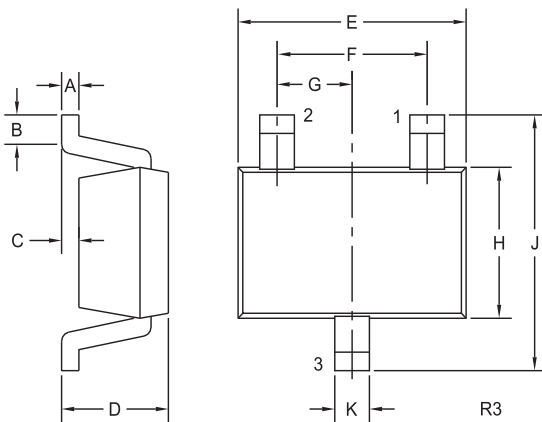


**ELECTRICAL CHARACTERISTICS - Continued:** ( $T_A=25^\circ\text{C}$  unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS
$V_{BE(SAT)}$	$I_C=500\text{mA}, I_B=0.5\text{mA}$			2.00	V
$V_{BE(ON)}$	$V_{CE}=5.0\text{V}, I_C=50\text{mA}$			1.75	V
◆ $h_{FE}$	<b><math>V_{CE}=5.0\text{V}, I_C=10\text{mA}</math></b>	<b>15K</b>		<b>100K</b>	
◆ $h_{FE}$	<b><math>V_{CE}=5.0\text{V}, I_C=100\text{mA}</math></b>	<b>25K</b>		<b>200K</b>	
◆ $h_{FE}$	<b><math>V_{CE}=5.0\text{V}, I_C=500\text{mA}</math></b>	<b>15K</b>		<b>140K</b>	
$f_T$	$V_{CE}=5.0\text{V}, I_C=10\text{mA}, f=100\text{MHz}$		200		MHz
$C_{ob}$	$V_{CB}=10\text{V}, I_E=0, f=1.0\text{MHz}$			7.0	pF
$C_{ib}$	$V_{BE}=0.5\text{V}, I_C=0, f=1.0\text{MHz}$			15	pF
NF	$V_{CE}=5.0\text{V}, I_C=1.0\text{mA}, R_S=100\text{k}\Omega,$ $f=1.0\text{kHz to } 15.7\text{kHz}$			10	dB

◆ Enhanced specification

**SOT-323 CASE - MECHANICAL OUTLINE**



SYMBOL	DIMENSIONS			
	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.002	0.008	0.05	0.20
B	0.004	-	0.10	-
C	-	0.004	-	0.10
D	0.031	0.043	0.80	1.10
E	0.071	0.087	1.80	2.20
F	0.051		1.30	
G	0.026		0.65	
H	0.045	0.053	1.15	1.35
J	0.079	0.087	2.00	2.20
K	0.008	0.016	0.20	0.40

SOT-323 (REV: R3)

**LEAD CODE:**

- 1) Base
- 2) Emitter
- 3) Collector

**MARKING CODE: C46**

R1 (9-February 2010)